United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with United States Department of Agriculture, Forest Service; North Carolina Department of Environment and Natural Resources; North Carolina Agricultural Research Service; North Carolina Cooperative Extension Service; Randolph Soil and Water Conservation District; and Randolph County Board of Commissioners

Soil Survey of Randolph County, North Carolina

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

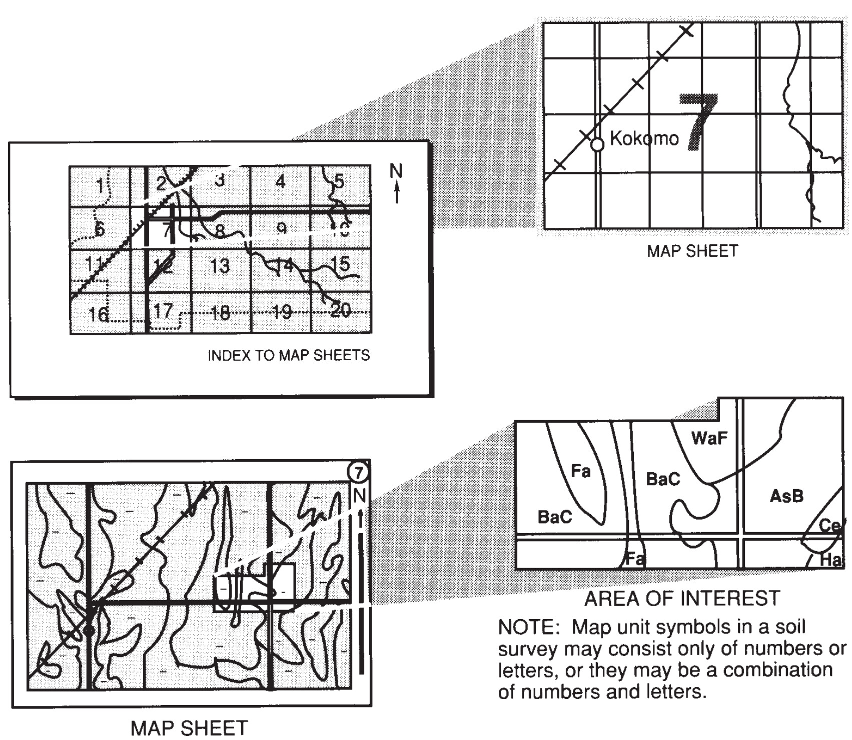
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the North Carolina Agricultural Research Service, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This soil survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of Agriculture, Forest Service; the North Carolina Department of Environment and Natural Resources; the North Carolina Agricultural Research Service; the North Carolina Cooperative Extension Service; the Randolph Soil and Water Conservation District; and the Randolph County Board of Commissioners. The survey is part of the technical assistance furnished to the Randolph Soil and Water Conservation District. The Randolph County Board of Commissioners provided financial assistance for the survey.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Dairy farm in an area of Badin-Tarrus complex, 2 to 8 percent slopes. The Uwharrie National Forest is in the background.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2006

Foreword

This soil survey contains information that affects land use planning in Randolph County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various decisions for land use or land treatment. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Mary K. Combs
State Conservationist
Natural Resources Conservation Service

Soil Survey of Randolph County, North Carolina

By Perry W. Wyatt, North Carolina Department of Environment and Natural Resources

Soils surveyed by Phyllis Hockett, Scott P. Sanders, Robert Freese, and Robert Kantlehnor, Natural Resources Conservation Service, and Perry W. Wyatt, North Carolina Department of Environment and Natural Resources

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
United States Department of Agriculture, Forest Service; North Carolina Department of Environment and Natural Resources; North Carolina Agricultural Research Service; North Carolina Cooperative Extension Service; Randolph Soil and Water Conservation District; and Randolph County Board of Commissioners

Randolph County is in the central part of North Carolina (fig. 1). It has a total area of 505,254 acres, or about 808 square miles. It is bordered by Guilford County to the north, Alamance and Chatham Counties to the east, Moore and Montgomery Counties to the south, and Davidson County to the west. According to the 1989 Census, the county's population is 106,546 *(18)*. The town of Asheboro, which is the largest town, is the county seat and is located near the center of the county. Other towns in the county are Archdale in the northwestern part, Randleman in the north-central part, Liberty in the northeastern part, Ramseur in the eastern part, and Seagrove in the south-central part.

This soil survey updates the survey of Randolph County published in 1913 *(9)*. It provides additional information and has larger maps, which show the soils in greater detail.

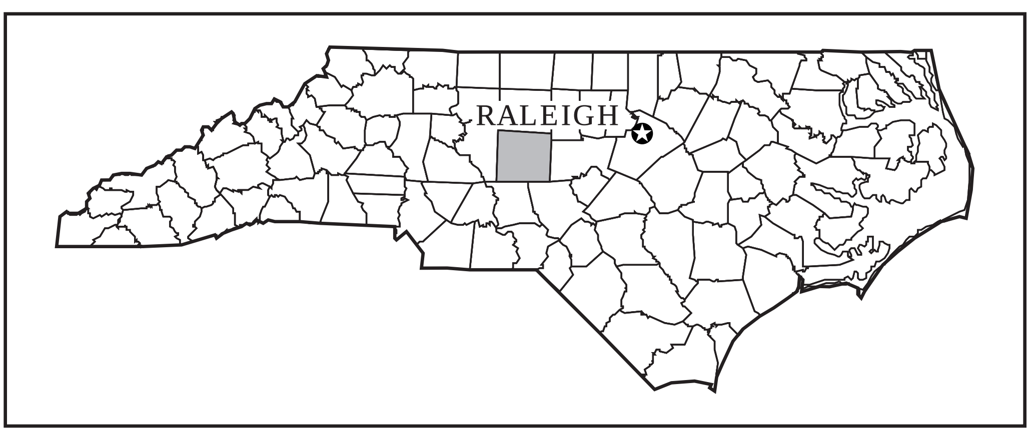


Figure 1.—Location of Randolph County in North Carolina.

General Nature of the County

This section gives general information about Randolph County. It describes the history; transportation and industry; physiography, relief, and drainage; recreation; water supply; and climate.

History

Settlement of the area now known as Randolph County began in the 1740's by people arriving from New England, Virginia, Pennsylvania, Maryland, and eastern North Carolina.

In 1779, an act of the General Assembly of North Carolina formed Randolph County from part of Guilford County. The county was named in honor of Peyton Randolph, the first president of the Continental Congress.

At one time, the economy of Randolph County was heavily oriented toward agriculture. Today, although the county is still predominantly rural, the role of agriculture in the county's economy continues to decline. In recent years, there has been a shift from the production of row crops and tobacco to the production of livestock, poultry, and dairy products *(8)*.

Transportation and Industry

Randolph County is served by U.S. Highway 220 and U.S. Highway 64, which bisect the county north to south and east to west. Other major highways include Interstate 85 in the Archdale area, U.S. Highway 421 in the Liberty area, and North Carolina Routes 22, 42, 47, 49, 62, 134, 159, and 705. Rail service is also available, and the Asheboro Municipal Airport provides local air service. Major commercial airline service is available at the Regional Airport in Greensboro.

Physiography, Relief, and Drainage

Randolph County is in the Piedmont physiographic region of North Carolina. Most of the county is characterized by gently rolling to hilly landscapes. In the southwestern part of the county and extending to the middle part of the county, a number of prominent peaks in the Uwharrie mountain chain rise above the general landscape. The largest of these are Sheppard, Caraway, Back Creek, Cedar Rock, Black, and Long Mountains. The interstream divides are characterized by gently rolling surfaces that become broken and hilly near the streams.

The Uwharrie and Deep Rivers and their tributaries form the two major drainage systems within the county. The Uwharrie River drains the western part of the county, and the Deep River drains the eastern part. The Little River, which rises near Asheboro, forms the headwaters of a third drainage basin.

Recreation

Randolph County offers a wide selection of recreational facilities, including tennis courts, ball fields, swimming pools, skating rinks, golf courses, a speedway, potteries, parks, and playgrounds. The North Carolina Zoological Park is a 1,400-acre natural habitat zoo. Attractions include the African Plains, the African Pavilion, the R.J. Reynolds Aviary, and the North America Section. For the outdoorsman, opportunities for hunting, hiking, and camping are available in the nearby Uwharrie National Forest. At the southern border of the county are several large lakes. Within the county are

areas of several lakes that offer camping, waterskiing, fishing, and other recreational activities.

Water Supply

Randolph County has an adequate supply of water from both surface streams and ground water. Most of the towns have public water supplies drawn from manmade lakes and wells. Irrigation water for farms is predominantly supplied by farm ponds. Ponds are also used for livestock, recreation, fire protection, and flood prevention.

Drilled and bored wells are used in Randolph County. Drilled wells are the most common. They are safer and more reliable than bored wells. Because these wells are tightly cased and the water is obtained from crevices in the bedrock, the danger of contamination or pollution is decreased. Because drilled wells generally extend far below the fluctuating water table, they rarely go dry.

Bored wells generally range from 30 to 40 feet in depth and from 18 to 24 inches in diameter. These wells can be easily bored to a considerable depth and thus are not likely to go dry during periods of drought. They cannot be used, however, where the water table is below the zone of completely decayed and disintegrated rock.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Asheboro, North Carolina, in the period 1933 to 1993. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 42.7 degrees F and the average daily minimum temperature is 32.5 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -8 degrees. In summer, the average temperature is 76.3 degrees and the average daily maximum temperature is 85.6 degrees. The highest recorded temperature, which occurred on August 18, 1988, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation is about 45.5 inches. Of this, 24.8 inches, or about 54 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 13 inches. Thunderstorms occur on about 47 days each year.

The average seasonal snowfall is about 8 inches. On the average, 4 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 65 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the southeast. Average windspeed is highest, 9 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native

plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify the soils. After describing the soils and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. The data from these analyses and tests and from field-observed characteristics and soil properties are used to predict behavior of the soils under different uses. Interpretations are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a relatively high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in accurately locating boundaries.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Survey Procedures

The general procedures followed in making this survey are described in the "National Soil Survey Handbook" of the Natural Resources Conservation Service and in the "Soil Survey Manual" *(11, 17)*.

Before fieldwork began, preliminary boundaries of slopes and landforms were plotted stereoscopically on aerial photographs taken in 1983 at a scale of 1:24,000. United States Geological Survey geologic and topographic maps at a scale of 1:24,000 were also used. Map units were then designed according to the pattern of soils interpreted from photographs, maps, and field observations.

Traverses in the valleys were made by truck or on foot. The soils were examined at intervals ranging from a few hundred feet to about 1/4 mile, depending on the landscape and soil pattern. Observations of special features, such as landforms, vegetation, and evidence of flooding, were made continuously without regard to spacing. Soil boundaries were determined on the basis of soil examinations, observations, and photo interpretations. In many areas, such as those where very steep slopes intersect with flood plains, these boundaries are precise because of an abrupt change in the landform. The soils were examined with the aid of a hand probe, a bucket auger, or a spade to a depth of about 3 to 5 feet. The typical pedons were observed in pits dug by hand.

Samples for chemical and physical analyses were taken from the site of the typical pedon of the major soils in the survey area. Most of the analyses were made by the Soil Survey Laboratory, Lincoln, Nebraska. Some soils were analyzed by the North Carolina State University Soils Laboratory, Raleigh, North Carolina. Commonly used laboratory procedures were followed *(12)*.

After completion of the soil mapping on aerial photographs, map unit delineations were transferred by hand to orthophotographs at a scale of 1:24,000 or 1:12,000. Surface drainage and cultural features were transferred from 7.5-minute topographic maps of the United States Geological Survey.

General Soil Map Units

The general soil map shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Georgeville

Gently sloping to moderately steep, well drained soils that have a loamy surface layer and a predominately clayey subsoil; on uplands

Setting

Location in the survey area: Area extending from Seagrove northward to Level Cross and eastward to the Chatham County line
Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits and side slopes
Slope range: 2 to 15 percent

Composition

Percent of the survey area: 37
Georgeville soils: 51 percent
Minor soils: 49 percent

Soil Characteristics

Georgeville
Surface layer: Yellowish red silty clay loam
Subsoil (upper part): Red clay
Subsoil (lower part): Red silty clay loam that has reddish yellow mottles
Underlying material: Red silt loam saprolite that has light reddish brown and very pale brown mottles
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6 feet
Slope range: 2 to 15 percent

Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Minor soils

- Random areas of the well drained Badin soils that have soft bedrock at a depth of 20 to 40 inches
- Random areas of the well drained Tarrus soils that have soft bedrock at a depth of 40 to 60 inches
- The moderately well drained or somewhat poorly drained Callison and Lignum soils that have a yellower subsoil and are at the head of drainageways
- The moderately well drained or somewhat poorly drained Misenheimer soils that have soft bedrock at a depth of less than 20 inches
- Georgeville soils that have extremely stony and bouldery surface layers and are on high hills and ridges
- The somewhat poorly drained Chewacla and the well drained Riverview soils on flood plains
- Goldston soils that have soft bedrock at a depth of 10 to 20 inches and are on steep side slopes
- Areas of Urban land that are adjacent to cities, towns, and other highly populated areas
- Random areas of Mecklenburg soils that have slow permeability and a moderate shrink-swell potential
- Random areas of Wynott and Enon soils that have a yellow subsoil and are very slowly permeable

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development

Cropland

Management concerns: Erodibility and soil fertility

Pasture and Hayland

Management concerns: Erodibility and soil fertility

Woodland

Management concerns: Erodibility, equipment use, seedling survival, and competition from undesirable plants

Urban Development

Management concerns: Restricted permeability, low strength, corrosivity, and slope in the steeper areas

2. Badin-Tarrus

Gently sloping to steep, well drained soils that have a loamy surface layer and a predominantly clayey subsoil; on uplands

Setting

Location in the survey area: Mainly in the western and southwestern parts of the county
Landscape: Piedmont uplands (fig. 2)
Landform: Ridges and side slopes
Landform position: Convex summits and side slopes
Slope range: 2 to 45 percent

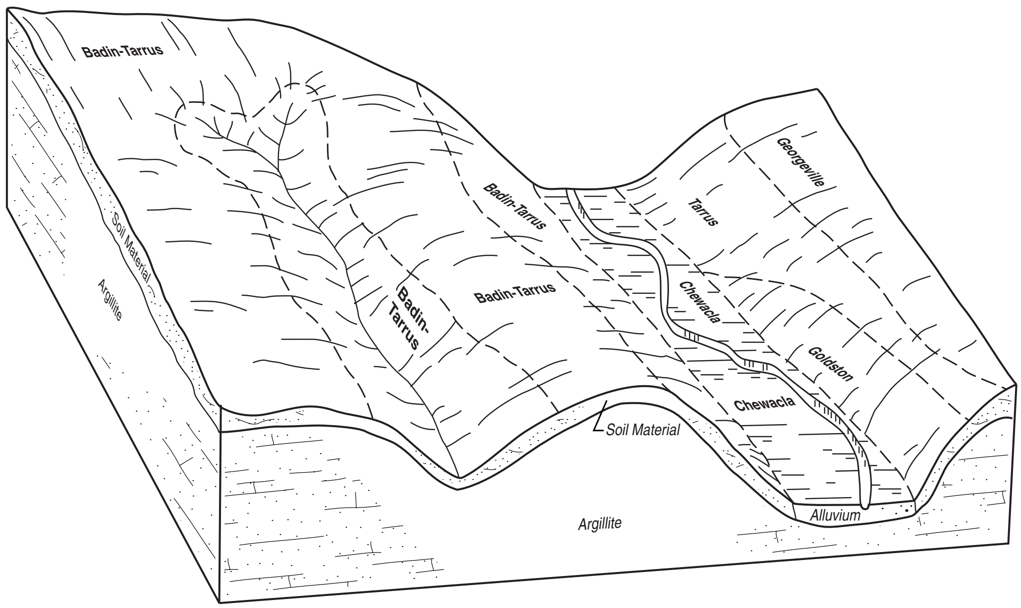


Figure 2.—The relationship of soils, parent material, and landscape in the Badin-Tarrus general soil map unit. These soils generally formed from argillite rocks.

Composition

Percent of the survey area: 23
Badin soils: 39 percent
Tarrus soils: 30 percent
Minor soils: 31 percent

Soil Characteristics

Badin
Surface layer: Strong brown silty clay loam
Subsoil (upper part): Yellowish red silty clay loam
Subsoil (middle part): Red clay
Subsoil (lower part): Red silty clay loam
Bedrock: Weathered, moderately hard fractured argillite
Depth class: Moderately deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 45 percent
Parent material: Residuum weathered from interbedded sedimentary rocks

Tarrus
Surface layer: Red silty clay loam
Subsoil (upper part): Red silty clay
Subsoil (lower part): Red silty clay loam
Underlying material: Red silt loam saprolite
Bedrock: Weathered, moderately hard fractured argillite
Depth class: Deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 45 percent
Parent material: Residuum weathered from interbedded sedimentary rocks

Minor soils
- Random areas of Georgeville soils that have bedrock at a depth of more than 60 inches
- Random areas of yellower Goldston soils that have soft bedrock at a depth of 10 to 20 inches
- Georgeville soils that have extremely stony and bouldery surface layers, have a red subsoil, have bedrock at a depth of more than 60 inches, and are on high hills
- The moderately well drained or somewhat poorly drained Callison and Lignum soils at the head of drainageways and along drainageways
- Random areas of Wynott, Enon, and Mecklenburg soils that have very slow permeability

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Management concerns: Erodibility, soil fertility, and equipment use in the steeper areas

Pasture and Hayland

Management concerns: Erodibility, soil fertility, and equipment use in the steeper areas

Woodland

Management concerns: Erodibility, windthrow hazard, competition from undesirable plants, and equipment use in the steeper areas

Urban Development

Management concerns: Depth to rock, permeability, shrink-swell potential, low strength, corrosivity, and slope in the steeper areas

3. Mecklenburg-Wynott-Enon

Gently sloping to moderately steep, well drained soils that have a loamy surface layer and a clayey subsoil; on uplands

Setting

Location in the survey area: Mainly in the northern part of the county
Landscape: Piedmont uplands (fig. 3)
Landform: Ridges
Landform position: Convex summits and side slopes
Slope range: 2 to 25 percent

Composition

Percent of the survey area: 13
Mecklenburg soils: 29 percent
Wynott soils: 28 percent
Enon soils: 16 percent
Minor soils: 27 percent

Soil Characteristics

Mecklenburg
Surface layer: Red clay loam
Subsoil (upper part): Red clay loam

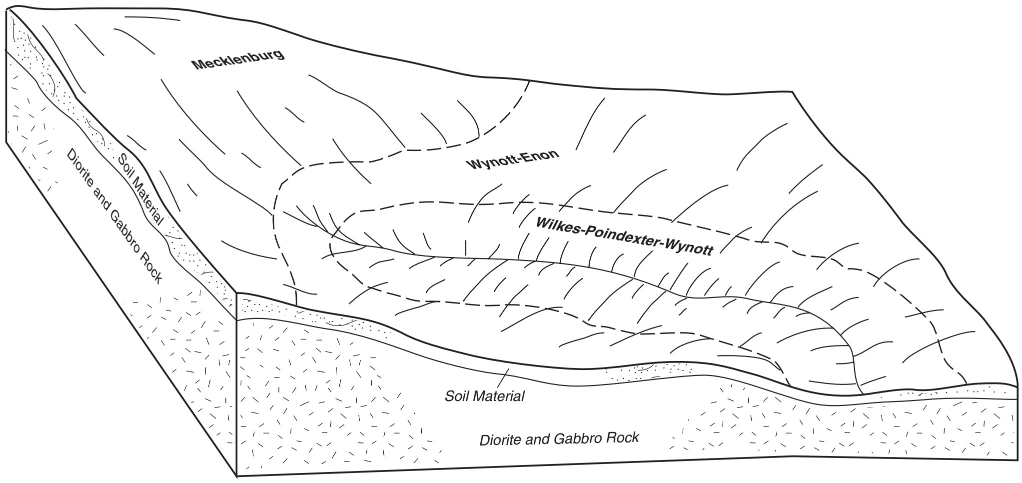


Figure 3.—The relationship of soils, parent material, and landscape in the Mecklenburg-Wynott-Enon general soil map unit. These soils formed from mafic rocks.

Subsoil (middle part): Red clay
Subsoil (lower part): Red clay that has reddish yellow mottles
Underlying material: Red loam saprolite that has reddish yellow mottles
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 25 percent
Parent material: Residuum weathered from mafic intrusive rocks
Depth to bedrock: More than 60 inches

Wynott
Surface layer: Brown sandy loam
Subsurface layer (upper part): Light olive brown sandy loam
Subsurface layer (lower part): Light olive brown loam that has light yellowish brown mottles
Subsoil (upper part): Yellowish brown clay that has black and yellow mottles
Subsoil (lower part): Dark yellowish brown sandy clay loam
Bedrock: Weathered, moderately hard multicolored diabase
Depth class: Moderately deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 25 percent
Parent material: Residuum weathered from mafic intrusive rocks

Enon
Surface layer: Dark yellowish brown sandy clay loam
Subsoil (upper part): Strong brown clay
Subsoil (lower part): Strong brown clay loam
Underlying material (upper part): Strong brown sandy loam saprolite
Underlying material (lower part): Strong brown, brownish yellow, black, and dark greenish gray saprolite
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet

Slope range: 2 to 25 percent
Parent material: Residuum weathered from diabase
Depth to bedrock: More than 60 inches

Minor soils

- Wilkes soils that have weathered bedrock within a depth of 20 inches and are on the steeper parts of the map unit
- Random areas of Poindexter soils that have less clay in the Bt horizons
- The moderately well drained Helena soils in depressions and at the head of drainageways
- Riverview soils, the somewhat poorly drained Chewacla soils, and the poorly drained Wehadkee soils on flood plains
- The moderately well drained Dogue soils and State soils that have less clay in the subsoil on low terraces
- Random areas of Cecil soils that have a red subsoil and a solum that is 40 to 60 inches thick
- Random areas of Appling soils that have strong brown and less plastic subsoils

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Management concerns: Erodibility, soil fertility, and equipment use in the steeper areas

Pasture and Hayland

Management concerns: Erodibility, soil fertility, and equipment use in the steeper areas

Woodland

Management concerns: Equipment use, erodibility, seedling survival, windthrow hazard, and competition from undesirable plants

Urban Development

Management concerns: Restricted permeability, shrink-swell potential, depth to rock, low strength, and corrosivity

4. Georgeville, extremely bouldery

Gently sloping to steep, well drained soils that have a loamy surface layer and a predominately clayey subsoil; on uplands

Setting

Location in the survey area: Mainly in the central and south-central parts of the county
Landscape: Piedmont (fig. 4)
Landform: Ridges
Landform position: Convex summits and side slopes
Slope range: 2 to 45 percent

Composition

Percent of the survey area: 12
Georgeville soils: 60 percent
Minor soils: 40 percent

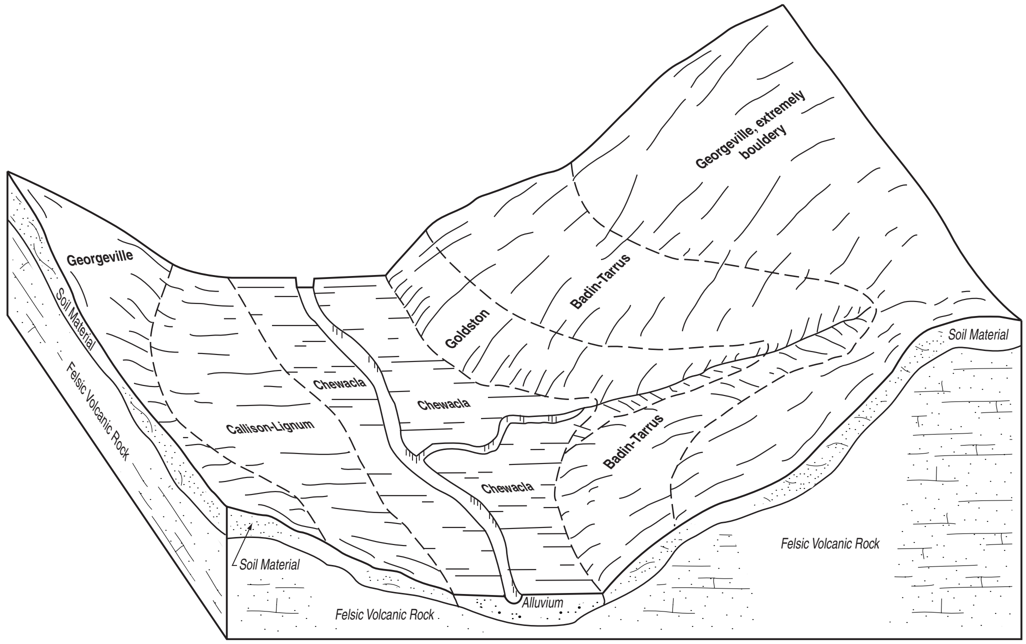


Figure 4.—The relationship of soils, parent material, and landscape in the Georgeville, extremely bouldery, general soil map unit. These soils are in areas of felsic volcanic geology.

Soil Characteristics

Georgeville

Surface layer: Strong brown silt loam that is extremely stony
Subsurface layer: Brownish yellow silt loam
Subsoil (upper part): Red clay
Subsoil (lower part): Red silty clay loam
Underlying material: Red silt loam saprolite
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 45 percent
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Minor soils

- Badin soils that are on toeslopes and footslopes and have soft bedrock at a depth of 20 to 40 inches
- Goldston soils that have soft bedrock at a depth of less than 20 inches and are on the steeper backslopes adjacent to flood plains
- Tarrus soils that are on toeslopes and footslopes and have soft bedrock at a depth of 40 to 60 inches
- Random areas of Georgeville soils that do not have stony or bouldery surface layers
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in depressions and at the head of drainageways
- Random areas of Wynott, Enon, and Mecklenburg soils that have a strong brown to red subsoil and are very slowly permeable
- Riverview soils, the somewhat poorly drained Chewacla soils, and the poorly drained Wehadkee soils on flood plains

- Dogue soils on low terraces
- Shellbluff soils and the somewhat poorly drained Chenneby soils on flood plains of the lower Uwharrie River and Little River watersheds

Use and Management

Major Uses: Woodland

Cropland

Management concerns: Equipment use, erodibility, competition from undesirable plants, and slope in the steeper areas

Pasture and Hayland

Management concerns: Equipment use, erodibility, and slope in the steeper areas

Woodland

Management concerns: Equipment use, erodibility, and competition from undesirable plants

Urban Development

Management concerns: Large stones, restricted permeability, shrink-swell potential, low strength, corrosivity, and slope in the steeper areas

5. Vance-Cecil-Appling

Gently sloping to steep, well drained soils that have a loamy surface layer and a predominantly clayey subsoil; on uplands

Setting

Location in the survey area: Mainly in the northeastern and eastern parts of the county
Landscape: Piedmont uplands (fig. 5)
Landform: Broad ridges
Landform position: Convex summits and side slopes
Slope range: 2 to 15 percent

Composition

Percent of the survey area: 8
Vance soils: 21 percent
Cecil soils: 17 percent
Appling soils: 12 percent
Minor soils: 50 percent

Soil Characteristics

Vance
Surface layer: Yellowish brown sandy loam
Subsoil (upper part): Strong brown clay that has red mottles
Subsoil (middle part): Strong brown clay
Subsoil (lower part): Strong brown sandy clay loam that has red and pink mottles
Underlying material: Multicolored sandy loam saprolite
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 15 percent

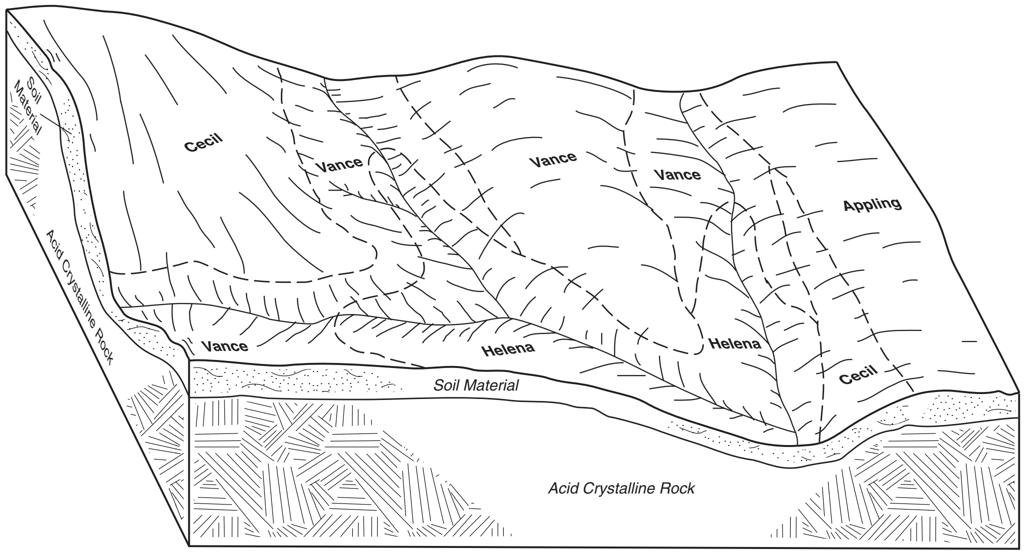


Figure 5.—The relationship of soils, parent material, and landscape in the Vance-Cecil-Appling general soil map unit. These soils generally formed from felsic intrusive rocks.

Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Cecil

Surface layer: Red sandy clay loam
Subsoil (upper part): Red clay
Subsoil (lower part): Red clay loam that has strong brown mottles
Underlying material: Red loam saprolite that has strong brown mottles
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 15 percent
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Appling

Surface layer: Light yellowish brown sandy loam
Subsoil (upper part): Strong brown sandy clay loam
Subsoil (middle part): Strong brown clay that has red mottles
Subsoil (lower part): Strong brown sandy clay loam that has yellowish brown, yellowish red, and red mottles
Underlying material: Sandy loam saprolite that is mottled in shades of strong brown, red, and pinkish white
Depth class: Very deep
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 2 to 15 percent
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Minor soils

- Random areas of Pacolet soils that have saprolite at a depth of less than 40 inches
- Random areas of Wynott, Enon, and Mecklenburg soils that have a high shrink-swell potential and very slow permeability
- The moderately well drained Helena soils in areas around the head of drainageways

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and homesites

Cropland

Management concerns: Erodibility, soil fertility, and equipment use in the steeper areas

Pasture and Hayland

Management concerns: Erodibility, soil fertility, and equipment use in the steeper areas

Woodland

Management concerns: Erodibility and competition from undesirable plants

Urban Development

Management concerns: Restricted permeability, shrink-swell potential, low strength, and corrosivity

6. Callison-Lignum-Goldston

Gently sloping to steep, moderately well drained and well drained soils that have a loamy surface layer and a predominately loamy subsoil; formed in residuum weathered from meta-argillite rocks

Setting

Location in the survey area: Mainly in the southeastern part of the county along the Randolph, Moore, and Chatham County lines
Landscape: Piedmont (fig. 6)
Landform: Broad ridges
Landform position: Convex summits and side slopes
Slope range: 2 to 50 percent

Composition

Percent of the survey area: 6
Callison soils: 28 percent
Lignum soils: 14 percent
Goldston soils: 11 percent
Minor soils: 47 percent

Soil Characteristics

Callison
Surface layer: Brown silt loam
Subsurface layer: Light olive brown silt loam
Subsoil (upper part): Olive yellow silt loam
Subsoil (middle part): Light olive brown silty clay loam that has pale yellow mottles
Subsoil (lower part): Olive brown silty clay loam that has light gray and strong brown mottles
Underlying material: Olive yellow silt loam saprolite that has white and light yellowish brown mottles

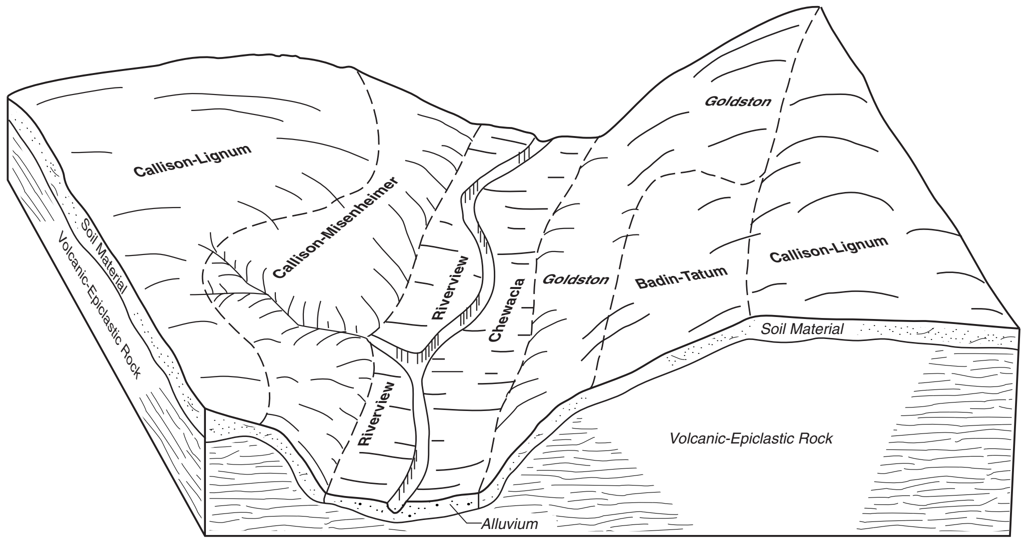


Figure 6.—The relationship of soils, parent material, and landscape in the Callison-Lignum-Goldston general soil map unit. These soils generally formed from volcanic-epiclastic rocks.

Bedrock (upper part): Weathered, moderately fractured argillite
Bedrock (lower part): Unweathered, slightly fractured argillite
Depth class: Moderately deep
Drainage class: Moderately well drained and somewhat poorly drained
High water table (depth, period): 1.5 to 3.0 feet, December through March
Slope range: 2 to 10 percent
Parent material: Residuum weathered from fine-grained metavolcanic rock

Lignum
Surface layer: Pale yellow silt loam
Subsurface layer: Very pale brown silt loam
Subsoil (upper part): Brownish yellow silty clay loam that has light gray mottles
Subsoil (middle part): Brownish yellow silty clay that has reddish yellow and light gray mottles
Subsoil (next part): Yellow, strong brown, red, and light gray clay
Subsoil (lower part): Reddish yellow silt loam that has white mottles
Bedrock: Weathered, fractured meta-argillite
Depth class: Moderately deep
Drainage class: Moderately well drained and somewhat poorly drained
High water table (depth, period): 1.0 to 2.5 feet, December through May
Slope range: 2 to 6 percent
Parent material: Residuum weathered from volcanic-epiclastic rocks

Goldston
Surface layer: Light yellowish brown very channery silt loam
Subsoil: Strong brown very channery silt loam
Bedrock: Weathered, moderately hard fractured volcanic-epiclastic rock
Depth class: Shallow
Drainage class: Well drained
Depth to high water table: More than 6.0 feet
Slope range: 4 to 50 percent
Parent material: Residuum weathered from volcanic rocks

Minor soils
- The well drained Badin and Tarrus soils that have a red subsoil and are on the higher parts of ridges and moderately steep side slopes
- The moderately well drained or somewhat poorly drained Misenheimer soils on side slopes
- Random areas of Wynott and Enon soils that have a yellow subsoil and are very slowly permeable
- The well drained Georgeville soils that have a red subsoil and are on the higher, broader ridges

Use and Management

Major Uses: Woodland and pasture and hayland

Cropland

Management concerns: Erodibility, soil fertility, wetness, depth to rock, and equipment use in the steeper areas

Pasture and Hayland

Management concerns: Erodibility, soil fertility, wetness, depth to rock, and equipment use in the steeper areas

Woodland

Management concerns: Seedling survival, windthrow hazard, competition from undesirable plants, and equipment use in the steeper areas

Urban Development

Management concerns: Wetness, depth to rock, restricted permeability, corrosivity, low strength, and slope in the steeper areas

7. Riverview-Chewacla

Nearly level, well drained and somewhat poorly drained soils that have a loamy surface layer and a loamy subsoil; on flood plains

Setting

Location in the survey area: Flood plains along major streams and rivers
Landscape: Piedmont
Landform: Flood plains
Landform position: Slightly concave or convex slopes
Slope range: 0 to 2 percent

Composition

Percent of the survey area: 1
Riverview soils: 49 percent
Chewacla soils: 44 percent
Minor soils: 7 percent

Soil Characteristics

Riverview
Surface layer: Dark yellowish brown sandy loam
Subsoil (upper part): Dark yellowish brown sandy loam that has dark brown mottles
Subsoil (lower part): Dark yellowish brown sandy clay loam that has yellowish brown and dark brown mottles

Underlying material (upper part): Yellowish brown sandy loam
Underlying material (lower part): Strong brown sandy clay loam that has thin strata of sandy clay
Depth class: Deep
Drainage class: Well drained
High water table (depth, period): 3 to 5 feet, December through March
Slope range: 0 to 2 percent
Parent material: Recent alluvium

Chewacla
Surface layer: Yellowish brown loam
Subsoil (upper part): Yellowish brown loam that has brown and pale brown mottles
Subsoil (middle part): Yellowish brown loam that has pale brown, dark yellowish brown, strong brown, and light gray mottles
Subsoil (lower part): Light yellowish brown loam that has light brownish gray and strong brown mottles and black and dark reddish brown manganese concretions
Underlying material: Light brownish gray clay loam that has strong brown mottles and black and reddish brown manganese concretions
Depth class: Very deep
Drainage class: Somewhat poorly drained
High water table (depth, period): 0.5 foot to 1.5 feet, late winter and early spring
Slope range: 0 to 2 percent
Parent material: Recent alluvium

Minor soils
- The moderately well drained Dogue soils on low terraces
- The poorly drained Wehadkee soils in depressions
- The well drained State soils that have a strong brown subsoil and are on the higher terraces

Use and Management

Major Uses: Woodland, pasture, and cropland

Cropland

Management concerns: Soil fertility, flooding, and wetness

Pasture and Hayland

Management concerns: Soil fertility, flooding, and wetness

Woodland

Management concerns: Equipment use and competition from undesirable plants

Urban Development

Management concerns: Flooding, wetness, corrosivity, and low strength

Detailed Soil Map Units

The map units delineated on the detailed maps represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading "Use and Management of the Soils."

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded, is a phase of the Georgeville series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Badin-Tarrus complex, 8 to 15 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarry, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see “Contents”) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

ApB—Appling sandy loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northeastern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Oblong or irregular
Size of areas: 5 to 75 acres

Composition

Appling soil and similar soils: 83 percent
Contrasting inclusions: 17 percent

Typical Profile

Surface layer:
0 to 6 inches—light yellowish brown sandy loam

Subsoil:
6 to 18 inches— strong brown sandy clay loam
18 to 36 inches—strong brown clay that has red mottles
36 to 52 inches—strong brown sandy clay loam that has yellowish brown, yellowish red, and red mottles

Underlying material:
52 to 63 inches—mottled strong brown, yellowish brown, yellowish red, and red sandy loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The moderately well drained Helena soils in depressions and along drainageways
- Random areas of Vance soils that are slowly permeable and have saprolite at a depth of 24 to 40 inches

Similar:
- Random areas of Cecil soils that have a red subsoil and are in landform positions similar to those of the Appling soil
- Random areas of soils that are similar to the Appling soil but have saprolite within a depth of 40 inches
- Random areas of Appling soils that have a surface layer of fine sandy loam or a gravelly surface layer

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco (fig. 7)
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Figure 7.—An area of Appling sandy loam, 2 to 6 percent slopes, used for tobacco.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

ApC—Appling sandy loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northeastern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 50 acres

Composition

Appling soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—light yellowish brown sandy loam

Subsoil:
6 to 18 inches—strong brown sandy clay loam
18 to 36 inches—strong brown clay that has red mottles
36 to 52 inches—strong brown sandy clay loam that has yellowish brown, yellowish red, and red mottles

Underlying material:
52 to 63 inches—mottled strong brown, yellowish brown, yellowish red, and red sandy loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The moderately well drained Helena soils in depressions and in areas around the head of drainageways
- Random areas of Wynott and Enon soils that are very slowly permeable and have a high shrink-swell potential

Similar:
- Random areas of soils that have saprolite within a depth of 40 inches
- Random areas of Appling soils that have a surface layer of fine sandy loam
- Random areas of Cecil soils that have a red subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximize crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Renovating pastures as needed and using the proper application rates of lime, fertilizer, and seed mixtures help to increase productivity.
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Plant competition
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, low soil strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed and compacting the roadbed help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

BaB—Badin-Tarrus complex, 2 to 8 percent slopes

Setting

Landscape: Piedmont uplands
Landform: Ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 200 acres

Composition

Badin soil and similar soils: 48 percent
Tarrus soil and similar soils: 40 percent
Contrasting inclusions: 12 percent

Typical Profile

Badin
Surface layer:
0 to 6 inches—strong brown silt loam

Subsoil:
6 to 24 inches—red clay
24 to 32 inches—red silty clay loam that has yellowish red and brown mottles

Bedrock:
32 to 60 inches—weathered, moderately fractured argillite

Tarrus
Surface layer:
0 to 6 inches—reddish yellow silt loam

Subsoil:
6 to 20 inches—red silty clay
20 to 44 inches—red clay that has brownish yellow mottles

Bedrock:
44 to 62 inches—weathered, moderately fractured argillite

Soil Properties and Qualities

Depth class: Badin—moderately deep; Tarrus—deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Badin—moderate; Tarrus—slight
Surface runoff: Medium
Parent material: Residuum weathered from argillite
Depth to bedrock: Badin—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Tarrus—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Georgeville soils that have soft bedrock at a depth of more than 60 inches

- Random areas of Goldston soils that have soft bedrock within a depth of 20 inches
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas along the head of drainageways
- Random areas of Mecklenburg, Enon, and Wynott soils that have slow permeability

Similar:
- Random areas of soils that have a strong brown subsoil and have soft bedrock at a depth of 40 to 60 inches
- Random areas of Badin and Tarrus soils that have a surface layer of channery silt loam

Use and Management

Major Uses: Pasture and hayland, woodland, and cropland

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Badin—moderately suited; Tarrus—well suited
Management concerns: Badin—erodibility, rooting depth, and soil fertility; Tarrus—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Badin—windthrow hazard and competition from undesirable plants; Tarrus—competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity of the Badin soil.

Urban Development

Suitability: Badin—poorly suited; Tarrus—suited
Management concerns: Depth to bedrock, restricted permeability, low strength, and corrosivity

Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 8D in areas of the Badin soil and 8A in areas of the Tarrus soil

BaC—Badin-Tarrus complex, 8 to 15 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the western part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 8 to 150 acres

Composition

Badin soil and similar soils: 45 percent
Tarrus soil and similar soils: 45 percent
Contrasting inclusions: 10 percent

Typical Profile

Badin
Surface layer:
0 to 6 inches—strong brown silt loam

Subsoil:
6 to 24 inches—red clay
24 to 32 inches—red silty clay loam that has yellowish red and brown mottles

Bedrock:
32 to 60 inches—weathered, moderately fractured argillite

Tarrus
Surface layer:
0 to 6 inches—yellowish red silt loam

Subsoil:
6 to 20 inches—red silty clay
20 to 44 inches—red silty clay that has brownish yellow mottles

Bedrock:
44 to 62 inches—weathered, moderately fractured argillite

Soil Properties and Qualities

Depth class: Badin—moderately deep; Tarrus—deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Badin—moderate; Tarrus—slight
Surface runoff: Rapid
Parent material: Residuum weathered from argillite
Depth to bedrock: Badin—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Tarrus—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Georgeville soils that have bedrock at a depth of more than 60 inches and are in the higher landform positions
- Goldston soils that have bedrock within a depth of 20 inches and are on the more sloping parts of the map unit
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas around the head of drainageways

Similar:
- Random areas of soils that are similar to the Tarrus soil and that have a strong brown subsoil
- Random areas of Badin and Tarrus soils that have a surface layer of channery silt loam

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Badin—erodibility, rooting depth, and soil fertility; Tarrus—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, soil fertility, and equipment use
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Badin—windthrow hazard and competition from undesirable plants; Tarrus—competition from undesirable plants
Management measures and considerations:
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Badin—poorly suited; Tarrus—suited
Management concerns: Depth to bedrock, restricted permeability, shrink-swell potential, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 8D in areas of the Badin soil and 8A in areas of the Tarrus soil

BaD—Badin-Tarrus complex, 15 to 25 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the western part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 10 to 200 acres

Composition

Badin soil and similar soils: 45 percent
Tarrus soil and similar soils: 45 percent
Contrasting inclusions: 10 percent

Typical Profile

Badin
Surface layer:
0 to 8 inches—strong brown silt loam

Subsoil:
8 to 20 inches—yellowish red silty clay loam
20 to 29 inches—strong brown silty clay loam

Underlying material:
29 to 38 inches—strong brown silt loam saprolite

Bedrock:
38 to 60 inches—weathered, moderately fractured argillite

Tarrus
Surface layer:
0 to 8 inches—yellowish red silt loam

Subsoil:
8 to 27 inches—red clay
27 to 38 inches—red silty clay

Underlying material:
38 to 56 inches—red silt loam saprolite

Bedrock:
56 to 60 inches—weathered, moderately fractured argillite

Soil Properties and Qualities

Depth class: Badin—moderately deep; Tarrus—deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Badin—moderate; Tarrus—slight
Surface runoff: Rapid
Parent material: Residuum weathered from argillite
Depth to bedrock: Badin—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Tarrus—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Goldston soils that have bedrock within a depth of 20 inches
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas around the head of drainageways

Similar:
- Badin and Tarrus soils that have a surface layer of channery silt loam
- Random areas of soils that are similar to the Tarrus soil and that have a strong brown subsoil

Use and Management

Major Uses: Woodland and pasture and hayland

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Badin—erodibility, equipment use, soil fertility, and rooting depth; Tarrus—erodibility, equipment use, and soil fertility
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—suited; hayland—poorly suited
Management concerns: Badin—erodibility, equipment use, rooting depth, and soil fertility; Tarrus—erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits the use of equipment in the steeper areas of this map unit.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Badin—erodibility, equipment use, and windthrow hazard; Tarrus—erodibility, equipment use, and competition from undesirable plants
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Using cable logging methods helps to overcome the equipment limitation and prevents the acceleration of erosion caused by road construction, use of skid trails, and disturbance of the forest floor by heavy machinery.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited
Management concerns: Slope, depth to bedrock, shrink-swell potential, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

BaE—Badin-Tarrus complex, 25 to 45 percent slopes

Setting

Landscape: Piedmont uplands, in the western and southwestern parts of the county
Landform: Hillslopes
Landform position: Convex backslopes
Shape of areas: Long and narrow or irregular
Size of areas: 5 to 200 acres

Composition

Badin soil and similar soils: 45 percent
Tarrus soil and similar soils: 45 percent
Contrasting inclusions: 10 percent

Typical Profile

Badin
Surface layer:
0 to 8 inches—strong brown silt loam

Subsoil:
8 to 20 inches—yellowish red silty clay
20 to 29 inches—strong brown silty clay loam

Underlying material:
29 to 38 inches—strong brown silt loam saprolite

Bedrock:
38 to 60 inches—weathered, moderately fractured argillite

Tarrus
Surface layer:
0 to 8 inches—yellowish red silt loam

Subsoil:
8 to 27 inches—red clay
27 to 38 inches—red silty clay

Underlying material:
38 to 56 inches—red silt loam saprolite

Bedrock:
56 to 60 inches—weathered, moderately fractured argillite

Soil Properties and Qualities

Depth class: Badin—moderately deep; Tarrus—deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Badin—moderate; Tarrus—slight
Surface runoff: Rapid
Parent material: Residuum weathered from argillite
Depth to bedrock: Badin—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Tarrus—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Goldston soils that have bedrock within a depth of 20 inches
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas around the head of drainageways

Similar:
- Random areas of soils that are similar to the Tarrus soil and that have a strong brown subsoil
- Badin and Tarrus soils that have a surface layer of channery silt loam

Use and Management

Major Uses: Woodland and recreation

Cropland

Major crops: None
Suitability: Unsuited
Management concerns: Badin—equipment use, erodibility, rooting depth, and soil fertility; Tarrus—equipment use, erodibility, and soil fertility
Management measures and considerations:
- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Slope, erodibility, and equipment use
Management measures and considerations:
- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Badin—erodibility, equipment use, and windthrow hazard; Tarrus—erodibility, equipment use, and competition from undesirable plants
Management measures and considerations:
- Establishing permanent plant cover on roads and landings after logging operations helps to reduce the hazard of erosion.
- Reforesting immediately after harvest using minimal site preparation and recommended tree species helps to control erosion and the siltation of streams.

- Using cable logging methods helps to overcome the equipment limitation and prevents the acceleration of erosion caused by road construction, use of skid trails, and disturbance of the forest floor by heavy machinery.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity of the Badin soil.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited
Management concerns: Depth to bedrock, slope, low strength, and corrosivity
Management measures and considerations:
- This map unit has severe limitations affecting septic tank absorption fields. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Designing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: VIe
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

BtB2—Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the western part of the county
Landform: Ridges
Landform position: Convex summits
Shape of areas: Elongated or irregular
Size of areas: 5 to 500 acres

Composition

Badin soil and similar soils: 44 percent
Tarrus soil and similar soils: 40 percent
Contrasting inclusions: 16 percent

Typical Profile

Badin
Surface layer:
0 to 8 inches—strong brown silty clay loam

Subsoil:
8 to 12 inches—yellowish red silty clay loam
12 to 27 inches—red clay
27 to 37 inches—red silty clay loam

Bedrock:
37 to 60 inches—weathered, moderately fractured argillite

Tarrus
Surface layer:
0 to 10 inches—red silty clay loam

Subsoil:
10 to 25 inches—red silty clay
25 to 32 inches—red silty clay loam

Underlying material:
32 to 47 inches—red silt loam saprolite

Bedrock:
47 to 60 inches—weathered, moderately fractured argillite

Soil Properties and Qualities

Depth class: Badin—moderately deep; Tarrus—deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Badin—moderate; Tarrus—slight
Surface runoff: Medium
Parent material: Residuum weathered from argillite and other fine-grained rocks in the Carolina Slate Belt
Depth to bedrock: Badin—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Tarrus—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Georgeville soils that have bedrock at a depth of more than 60 inches
- Random areas of Goldston soils that have bedrock within a depth of 10 to 20 inches
- Random areas of Mecklenburg, Wynott, and Enon soils that have very slow permeability and a high shrink-swell potential

Similar:
- Random areas of soils that have a strong brown subsoil
- Random areas of Badin and Tarrus soils that have a channery surface layer

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Corn (fig. 8), soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Badin—erodibility, rooting depth, and soil fertility; Tarrus—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to reduce the hazard of erosion, control surface runoff, and maximize the infiltration of water.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Figure 8.—No-till planting of corn in small grain stubble in an area of Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded.

- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Well suited
Management concerns: Badin—erodibility, rooting depth, and soil fertility; Tarrus—erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Badin—suited; Tarrus—well suited
Productivity: Moderately high
Management concerns: Badin—erodibility, equipment use, seedling survival, and windthrow hazard; Tarrus—competition from undesirable plants

Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Restricting logging operations to periods when the soils are not wet helps to prevent rutting and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Badin—poorly suited; Tarrus—suited
Management concerns: Depth to bedrock, shrink-swell potential, restricted permeability, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soils are not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 6D in areas of the Badin soil and 8A in areas of the Tarrus soil

BtC2—Badin-Tarrus complex, 8 to 15 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the western part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 10 to 150 acres

Composition

Badin soil and similar soils: 62 percent
Tarrus soil and similar soils: 33 percent
Contrasting inclusions: 5 percent

Typical Profile

Badin
Surface layer:
0 to 8 inches—strong brown silty clay loam

Subsoil:
8 to 12 inches—yellowish red silty clay loam
12 to 27 inches—red clay
27 to 37 inches—red silty clay loam

Bedrock:
37 to 60 inches—weathered, moderately fractured argillite

Tarrus
Surface layer:
0 to 10 inches—red silty clay loam

Subsoil:
10 to 25 inches—red silty clay
25 to 32 inches—red silty clay loam

Underlying material:
32 to 47 inches—red silt loam

Bedrock:
47 to 60 inches—weathered, moderately fractured argillite

Soil Properties and Qualities

Depth class: Badin—moderately deep; Tarrus—deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Badin—moderate; Tarrus—slight
Surface runoff: Medium or rapid
Parent material: Residuum weathered from argillite
Depth to bedrock: Badin—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Tarrus—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Goldston soils that have bedrock within a depth of 20 inches
- Random areas of Georgeville soils that have bedrock at a depth of more than 60 inches
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas around the head of drainageways

Similar:
- Badin and Tarrus soils that have a surface layer of channery silty clay loam
- Random areas of soils that are similar to the Tarrus soil and that have a strong brown subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Badin—poorly suited; Tarrus—suited
Management concerns: Badin—erodibility, rooting depth, and soil fertility; Tarrus—erodibility and soil fertility
Management measures and considerations:

- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Badin—erodibility, soil fertility, equipment use, and rooting depth; Tarrus—erodibility, equipment use, and soil fertility
Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Badin—suited; Tarrus—well suited
Productivity: Moderately high
Management concerns: Badin—erodibility, equipment use, seedling survival, and windthrow hazard; Tarrus—competition from undesirable plants
Management measures and considerations:

- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Restricting logging operations to periods when the soils are not wet helps to prevent rutting and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Badin—poorly suited; Tarrus—suited
Management concerns: Depth to bedrock, shrink-swell potential, restricted permeability, slope, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 6D in areas of the Badin soil and 8A in areas of the Tarrus soil

CaB—Callison-Lignum complex, 2 to 6 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the southeastern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 10 to 500 acres

Composition

Callison soil and similar soils: 52 percent
Lignum soil and similar soils: 38 percent
Contrasting inclusions: 10 percent

Typical Profile

Callison
Surface layer:
0 to 3 inches—brown silt loam

Subsurface layer:
3 to 7 inches—light olive brown silt loam

Subsoil:
7 to 15 inches—olive yellow silt loam
15 to 21 inches—light olive brown silty clay loam that has pale yellow mottles
21 to 30 inches—light olive brown silty clay loam that has light gray and strong brown mottles

Underlying material:
30 to 32 inches—light olive brown silt loam saprolite that has white and light yellowish brown mottles

Bedrock:
32 to 42 inches—weathered, moderately fractured argillite
42 inches—unweathered, slightly fractured argillite

Lignum
Surface layer:
0 to 6 inches—pale yellow silt loam

Subsurface layer:
6 to 11 inches—very pale brown silt loam

Subsoil:
11 to 15 inches—brownish yellow silty clay loam that has light gray mottles
15 to 22 inches—brownish yellow silty clay that has reddish yellow and light gray mottles
22 to 29 inches—mottled yellow, strong brown, red, and light gray silty clay
29 to 47 inches—reddish yellow silt loam that has white mottles

Bedrock:
47 to 60 inches—weathered, moderately fractured meta-argillite

Soil Properties and Qualities

Depth class: Callison—moderately deep; Lignum—deep
Drainage class: Moderately well drained and somewhat poorly drained
Permeability: Callison—moderately slow; Lignum—slow
High water table (depth, period, type): Callison—1.5 to 3.0 feet from December through March, perched; Lignum—1.0 to 2.5 feet from December through May, perched
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Callison—slow or medium; Lignum—slow
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: Callison—20 to 40 inches to soft bedrock and 40 to 60 inches to hard bedrock; Lignum—40 to 60 inches to soft bedrock and more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Well drained soils that have a strong brown subsoil, have soft bedrock at a depth of 40 to 60 inches, and are on small knolls
- Poorly drained soils in depressions

Similar:
- Random areas of soils that have less clay in the subsoil than the Callison and Lignum soils

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn and small grain
Suitability: Well suited
Management concerns: Erodibility, soil fertility, and wetness
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Delaying planting in spring helps to prevent the clodding and rutting caused by equipment due to wetness resulting from the high water table.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility, soil fertility, and wetness
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Preventing overgrazing or preventing grazing when the soils are too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.

Woodland

Suitability: Suited
Productivity: Callison—moderately high; Lignum—moderate
Management concerns: Callison—equipment use, windthrow hazard, and competition from undesirable plants; Lignum—seedling survival and competition from undesirable plants
Management measures and considerations:
- Restricting logging operations to periods when the soils are not saturated helps to prevent rutting and damage to tree roots due to soil compaction.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity of the Callison soil.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Preparing a seedbed prior to planting helps to establish seedlings and increases their survival rates.

Urban Development

Suitability: Poorly suited
Management concerns: Callison—depth to bedrock, restricted permeability, shrink-swell potential, wetness, low strength, and corrosivity; Lignum—restricted permeability, wetness, shrink-swell potential, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Building structures on the highest part of the landform and providing artificial drainage help to reduce the risk of damage caused by wetness.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 9W in areas of the Callison soil and 4W in areas of the Lignum soil

CbC—Callison-Misenheimer complex, 6 to 10 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the southeastern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow or irregular
Size of areas: 5 to 150 acres

Composition

Callison soil and similar soils: 51 percent
Misenheimer soil and similar soils: 35 percent
Contrasting inclusions: 14 percent

Typical Profile

Surface layer:
0 to 3 inches—brown silt loam

Subsurface layer:
3 to 7 inches—light olive brown silt loam

Subsoil:
7 to 15 inches—olive yellow silt loam
15 to 21 inches—light olive brown silty clay loam that has pale yellow mottles
21 to 30 inches—light olive brown silty clay loam that has light gray and strong brown mottles

Underlying material:
30 to 32 inches—light olive brown silt loam saprolite that has white and light yellowish brown mottles

Bedrock:
32 to 42 inches—weathered, moderately fractured argillite
42 inches—unweathered, slightly fractured argillite

Misenheimer
Surface layer:
0 to 8 inches—light yellowish brown channery silt loam

Subsoil:
8 to 16 inches—brownish yellow channery silty clay loam that has light gray mottles

Bedrock:
16 to 22 inches—dark, weathered, highly fractured meta-argillite that has light brownish gray silt loam in cracks
22 inches—unweathered, slightly fractured meta-argillite

Soil Properties and Qualities

Depth class: Callison—moderately deep; Misenheimer—shallow
Drainage class: Moderately well drained and somewhat poorly drained
Permeability: Callison—moderately slow; Misenheimer—moderately rapid
High water table (depth, period, type): Callison—1.5 to 3.0 feet from December through March, perched; Misenheimer—1.0 to 1.5 feet from December through April, perched
Flooding: None

Shrink-swell potential: Callison—moderate; Misenheimer—low
Surface runoff: Callison—slow or medium; Misenheimer—slow
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: Callison—20 to 40 inches to soft bedrock and 40 to 60 inches to hard bedrock; Misenheimer—10 to 20 inches to soft bedrock and 20 to 40 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Lignum soils that have soft bedrock at a depth of 40 to 60 inches
- Random areas of the well drained Goldston soils
- Random areas of the well drained Badin soils
- The somewhat poorly drained Chewacla soils along drainageways

Similar:
- Random areas of Callison and Misenheimer soils that have a surface layer of very fine sandy loam

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn and small grain
Suitability: Suited
Management concerns: Callison—erodibility and soil fertility; Misenheimer—erodibility, soil fertility, and depth to bedrock
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Because of the shallow rooting depth, managing areas of the Misenheimer soil for economical crop production is difficult.

Pasture and Hayland

Suitability: Well suited
Management concerns: Callison—erodibility, soil fertility, and wetness; Misenheimer—erodibility, soil fertility, wetness, and rooting depth
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Preventing overgrazing or preventing grazing when the soils are too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.
- Because of the shallow rooting depth, managing areas of the Misenheimer soil for the economical production of pasture and hay crops is difficult.

Woodland

Suitability: Suited
Productivity: Moderately high

Management concerns: Callison—equipment use, windthrow hazard, and competition from undesirable plants; Misenheimer—equipment use, seedling survival, and windthrow hazard

Management measures and considerations:

- Restricting logging operations to periods when the soils are not saturated helps to prevent rutting and damage to tree roots due to soil compaction.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Preparing a seedbed prior to planting helps to establish seedlings and increases their survival rates.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited

Management concerns: Callison—depth to bedrock, wetness, shrink-swell potential, low strength, and corrosivity; Misenheimer—depth to bedrock, wetness, low strength, and corrosivity

Management measures and considerations:

- The local Health Department should be contacted for guidance in developing sanitary facilities.
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: IIIe

Woodland ordination symbol: Callison—9W, based on loblolly pine as the indicator species; Misenheimer—6D, based on shortleaf pine as the indicator species

CcB—Cecil sandy loam, 2 to 8 percent slopes

Setting

Landscape: Piedmont uplands mainly in the northeastern part of the county
Landform: Ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 50 acres

Composition

Cecil soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 28 inches—red clay
28 to 48 inches—red clay that has brownish yellow mottles
48 to 56 inches—red clay loam

Underlying material:
56 to 63 inches—red clay loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Vance soils that have slow permeability and are on small knolls
- Random areas of Pacolet soils that have a solum that is 20 to 40 inches thick

Similar:
- Cecil soils that have a loam surface layer
- Random areas of Appling soils that have a reddish yellow subsoil

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Well suited
Management concerns: Soil fertility and erodibility
Management measures and considerations:
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.

Pasture and Hayland

Suitability: Well suited
Management concerns: Soil fertility and erodibility
Management measures and considerations:
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

CcC—Cecil sandy loam, 8 to 15 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northeastern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Cecil soil and similar soils: 84 percent
Contrasting inclusions: 16 percent

Typical Profile

Surface layer:
0 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 28 inches—red clay
28 to 48 inches—red clay that has brownish yellow mottles
48 to 56 inches—red clay loam

Underlying material:
56 to 63 inches—red clay loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None

Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Pacolet soils that have saprolite at a depth of 20 to 40 inches
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are along the contact zone with slate rocks
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas around drainageways along the contact zone with slate rocks
- Random areas of Vance soils that have slow permeability

Similar:
- Random areas of Appling soils that have a reddish yellow subsoil
- Cecil soils that have a surface layer of sandy clay loam
- Random areas of soils that have a reddish yellow subsoil and saprolite at a depth of 20 to 40 inches

Use and Management

Major Uses: Woodland, cropland, and pasture and hayland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, slope, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

CeB2—Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northeastern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Elongated or irregular
Size of areas: 5 to 250 acres

Composition

Cecil soil and similar soils: 84 percent
Contrasting inclusions: 16 percent

Typical Profile

Surface layer:
0 to 8 inches—red sandy clay loam

Subsoil:
8 to 33 inches—red clay
33 to 60 inches—red clay loam that has strong brown mottles

Underlying material:
60 to 63 inches—red loam saprolite that has strong brown mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained

Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Pacolet soils that have saprolite at a depth of 20 to 40 inches
- Vance soils that have slow permeability and are on small knolls

Similar:
- Cecil soils that have a surface layer of sandy loam
- Random areas of Appling soils that have a reddish yellow subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.

- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 7C, based on loblolly pine as the indicator species

CfA—Chenneby silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Piedmont, mostly in the lower Uwharrie River and Little River watersheds
Landform: Flood plains
Landscape position: Planar to slightly concave slopes along major streams and drainageways
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Chenneby soil: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown silt loam

Subsoil:
6 to 10 inches—yellowish brown silt loam
10 to 34 inches—yellowish brown silt loam that has light brownish gray mottles

Underlying material:
34 to 50 inches—brown sandy loam that has yellowish brown and light gray mottles
50 to 60 inches—brown sandy loam that has light gray mottles and dark brown manganese concretions

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: High
High water table (depth, period, type): 1.0 foot to 2.5 feet from January through March, apparent
Flooding (frequency, period, duration): Frequent from November through April for 1 to 3 days
Shrink-swell potential: Low
Surface runoff: Slow
Parent material: Recent alluvium
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The well drained Shellbluff soils in the slightly higher areas, commonly closest to the stream channel
- Small areas of poorly drained, loamy soils in depressions and at the foot of upland slopes

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Suitability: Poorly suited (well suited where drained and protected from flooding)
Management concerns: Flooding and wetness
Management measures and considerations:
- An artificial and/or surface drainage system may be needed if moisture-sensitive crops are grown.
- Tillage should be restricted to dry periods.
- Flood-control measures are needed to reduce damage to crops.
- Harvesting row crops as soon as possible helps to reduce the risk of damage from wetness.
- Maintaining unobstructed drainageways helps to expedite the removal of excess water.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
- Flooding may be a hazard for livestock.
- Installing and/or maintaining drainage systems helps to control the high water table.
- Preventing overgrazing, preventing grazing during wet periods, using low-pressure ground equipment, sod management, and controlling weeds help to minimize compaction and provide quality forage.
- Intensive grazing practices can maximize forage utilization and improve forage quality.

Woodland

Suitability: Suited
Productivity: Moderately high

Management concerns: Equipment use, windthrow hazard, and competition from undesirable plants
Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet and using low-pressure ground equipment help to prevent rutting and possible root damage from compaction.
- Artificial drainageways should be maintained, and trees that are tolerant of wetness should be planted.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants and seedling mortality rates.
- Maintaining filter strips of natural vegetation helps to reduce siltation and maintain water temperature along intermittent and perennial streams.
- Ground surface disturbance in filter strips should be kept to a minimum.
- Extra care is needed in planning the maintenance of roads and fire lanes because of the windthrow hazard.
- Planting seedlings on bedded ridges helps to reduce seedling mortality rates.

Urban Development

Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: IVw
Woodland ordination symbol: 11W, based on loblolly pine as the indicator species

ChA—Chewacla loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Piedmont, mostly in the Uwharrie River watershed
Landform: Flood plains
Landscape position: Planar to slightly concave slopes along major streams and drainageways
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Chewacla soil and similar soils: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

Surface layer:
0 to 10 inches—yellowish brown loam

Subsoil:
10 to 17 inches—yellowish brown loam that has brown and pale brown mottles

17 to 22 inches—yellowish brown loam that has pale brown, dark yellowish brown, strong brown, and light gray mottles
22 to 34 inches—light yellowish brown loam that has light brownish gray and strong brown mottles and reddish brown and black manganese concretions

Underlying material:
34 to 64 inches—light brownish gray clay loam that has strong brown mottles and many black and reddish brown manganese concretions

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
High water table (depth, period, type): 0.5 foot to 1.5 feet from November through April, apparent
Flooding (frequency, period, duration): Frequent from November through April for 1 to 3 days
Shrink-swell potential: Low
Surface runoff: Slow
Parent material: Recent alluvium
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The well drained Riverview soils in areas adjacent to streams and at the slightly higher elevations
- The moderately well drained Dogue soils on adjacent low stream terraces
- The poorly drained Wehadkee soils in depressions

Similar:
- Chewacla soils that have a surface layer of sandy loam or silt loam

Use and Management

Major Uses: Woodland (fig. 9), cropland, and pasture and hayland

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
- Harvesting row crops as soon as possible helps to reduce the risk of damage from possible flooding.
- Planting wetness-tolerant species in undrained areas helps to improve soil productivity.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
- Harvesting hay crops as soon as possible helps to reduce the risk of damage from flooding.
- Flooding may be a hazard for livestock.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.

Figure 9.—A woodland area of Chewacla loam, 0 to 2 percent slopes, frequently flooded.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Equipment use, windthrow hazard, and competition from undesirable plants
Management measures and considerations:
- Harvesting timber during summer helps to reduce the risk of damage caused by flooding.
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: IVw
Woodland ordination symbol: 7W, based on yellow-poplar as the indicator species

CmA—Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Piedmont, mainly in the Deep River and Upper Uwharrie watersheds
Landform: Flood plain
Landform position: Slightly concave or convex slopes
Shape of areas: Long and narrow
Size of areas: 5 to 150 acres

Composition

Chewacla soil and similar soils: 50 percent
Wehadkee soil and similar soils: 45 percent
Contrasting inclusions: 5 percent

Typical Profile

Chewacla
Surface layer:
0 to 10 inches—yellowish brown loam

Subsoil:
10 to 17 inches—yellowish brown loam that has brown and pale brown mottles
17 to 22 inches—yellowish brown loam that has pale brown, dark yellowish brown, strong brown, and light gray mottles
22 to 34 inches—light yellowish brown loam that has light brownish gray and strong brown mottles and reddish brown and black manganese concretions

Underlying material:
34 to 64 inches—light brownish gray clay loam that has strong brown mottles and black and reddish brown manganese concretions

Wehadkee
Surface layer:
0 to 6 inches—olive brown silt loam

Subsoil:
6 to 20 inches—olive gray silt loam that has yellowish red mottles
20 to 25 inches—light olive gray silt loam that has light olive brown mottles

Underlying material:
25 to 35 inches—olive gray very fine sandy loam
35 to 60 inches—gray very fine sandy loam that has olive brown mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Chewacla—somewhat poorly drained; Wehadkee—poorly drained
Permeability: Moderate
High water table (depth, period, type): Chewacla—0.5 foot to 1.5 feet from November through April, apparent; Wehadkee—0 to 1.0 foot from November through May, apparent
Flooding (frequency, period, duration): Chewacla—frequent from November through April for 1 to 3 days; Wehadkee—frequent from November through May for 2 to 5 days
Shrink-swell potential: Low
Surface runoff: Chewacla—slow; Wehadkee—very slow

Parent material: Recent alluvium
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The well drained Riverview soils in areas adjacent to the stream channel and at the slightly higher elevations
- The moderately well drained Dogue soils on adjacent low stream terraces

Similar:
- Chewacla and Wehadkee soils that have a surface layer of sandy loam or silt loam

Use and Management

Major Uses: Woodland and pasture and hayland

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Flooding and wetness
Management measures and considerations:
- Flooding may be a hazard for livestock.
- Preventing overgrazing or preventing grazing when the soils are too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Chewacla—equipment use, windthrow hazard, and competition from undesirable plants; Wehadkee—equipment use, seedling survival, windthrow hazard, and competition from undesirable plants
Management measures and considerations:
- Harvesting timber during summer helps to reduce the risk of damage caused by flooding.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Preparing a seedbed prior to planting helps to establish seedlings and increases their survival rates.

Urban Development

Suitability: Unsuited
Management concerns: Flooding and wetness
Management measures and considerations:
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: Chewacla—IIIw; Wehadkee—VIw
Woodland ordination symbol: Based on yellow-poplar as the indicator species, 7W in areas of the Chewacla soil and 8W in areas of the Wehadkee soil

CnB2—Coronaca clay loam, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northeastern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Oblong or irregular
Size of areas: 10 to 250 acres

Composition

Coronaca soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown clay loam

Subsoil:
8 to 30 inches—dark red clay that has dark mineral stains
30 to 52 inches—dark red clay that has reddish yellow mottles and dark mineral stains
52 to 71 inches—dark red clay that has reddish yellow mottles and dark mineral stains
71 to 80 inches—red clay loam that has reddish yellow mottles

Underlying material:
80 to 95 inches—red silty clay loam saprolite that has reddish yellow mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Medium
Parent material: Residuum weathered from felsic to mafic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Mecklenburg soils that have saprolite at a depth of 20 to 58 inches

Similar:
- Random areas of Coronaca soils that have a loam surface layer

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Corn and small grain
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Erodibility and competition from undesirable plants
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, shrink-swell potential, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

CnC2—Coronaca clay loam, 8 to 15 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northeastern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 50 acres

Composition

Coronaca soil and similar soils: 87 percent
Contrasting inclusions: 13 percent

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown clay loam

Subsoil:
8 to 30 inches—dark red clay that has dark mineral stains
30 to 52 inches—dark red clay that has reddish yellow mottles and dark mineral stains
52 to 71 inches—dark red clay that has reddish yellow mottles and dark mineral stains
71 to 80 inches—red clay loam that has reddish yellow mottles

Underlying material:
80 to 95 inches—red silty clay loam saprolite that has reddish yellow mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Medium
Parent material: Residuum weathered from felsic to mafic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Mecklenburg soils that have saprolite at a depth of 20 to 58 inches

Similar:
- Random areas of Coronaca soils that have a loam surface layer

Use and Management

Major Uses: Cropland and woodland

Cropland

Major crops: Corn and small grain
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits the use of equipment in the steeper areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, shrink-swell potential, low strength, and corrosivity
Management measures and considerations:
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Increasing the size of the absorption fields and installing distribution lines on the contour help to improve the performance of septic tank absorption fields.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

DaB—Davidson loam, 2 to 8 percent slopes

Setting

Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Slightly convex areas
Shape of areas: Long and narrow or oblong
Size of areas: 5 to 25 acres

Composition

Davidson soil and similar soils: 95 percent
Contrasting inclusions: 5 percent

Typical Profile

Surface layer:
0 to 8 inches—dark red loam

Subsoil:
8 to 27 inches—dark red clay
27 to 39 inches—dark red clay that has reddish yellow mottles
39 to 62 inches—red clay loam

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic to mafic high-grade metamorphic or igneous rocks having a high content of ferromagnesian minerals
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Mecklenburg soils that have a solum that is 20 to 58 inches thick and are in the slightly higher landform positions

Similar:
- Davidson soils that have a surface layer of clay loam

Use and Management

Major Uses: Woodland and pasture and hayland

Cropland

Major crops: None
Suitability: Well suited
Management concerns: Erodibility and soil fertility

Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: High
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9A, based on loblolly pine as the indicator species

DoB—Dogue sandy loam, 2 to 6 percent slopes, occasionally flooded

Setting

Landscape: Piedmont uplands
Landform: Low terraces

Landform position: Planar to slightly convex slopes
Shape of areas: Elongated
Size of areas: 5 to 25 acres

Composition

Dogue soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 8 inches—light olive brown sandy loam

Subsoil:
8 to 19 inches—yellowish brown sandy clay loam that has brownish yellow mottles
19 to 32 inches—strong brown sandy clay that has light gray mottles
32 to 45 inches—gray clay that has light gray, reddish yellow, and strong brown mottles

Underlying material:
45 to 63 inches—strong brown clay that has gray mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
High water table (depth, period, type): 1.5 to 2.5 feet from January through March, apparent
Flooding (frequency, period, duration): Occasional from January through May for 2 to 5 days
Shrink-swell potential: Moderate
Surface runoff: Slow
Parent material: Clayey fluvial deposits
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The well drained State soils that have a loamy subsoil and are in the slightly higher landform positions
- The somewhat poorly drained Chewacla soils on adjacent flood plains

Similar:
- Random areas of Dogue soils that have a surface layer of loam or silt loam

Use and Management

Major Uses: Cropland, woodland, and pasture and hayland

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Suited
Management concerns: Flooding, wetness, and soil fertility
Management measures and considerations:
- Harvesting row crops as soon as possible helps to reduce the risk of damage from possible flooding.
- Planting wetness-tolerant species in undrained areas helps to improve soil productivity.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Flooding, wetness, and soil fertility
Management measures and considerations:
- Harvesting hay crops as soon as possible helps to reduce the risk of damage from flooding.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: High
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
- Using wide-tired or crawler-type equipment and harvesting trees during the drier summer months help to improve trafficability.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Flooding, wetness, and shrink-swell potential
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the flooding and wetness. The local Health Department should be contacted for guidance in developing sanitary facilities.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 9A, based on loblolly pine as the indicator species

GaB—Georgeville silt loam, 2 to 8 percent slopes

Setting

Landscape: Piedmont Slate Belt, mainly in the central part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Rounded or irregular
Size of areas: 5 to 250 acres

Composition

Georgeville soil and similar soils: 95 percent
Contrasting inclusions: 5 percent

Typical Profile

Surface layer:
0 to 13 inches—yellowish brown silt loam

Subsoil:
13 to 48 inches—red clay
48 to 52 inches—red silty clay loam that has yellowish red mottles

Underlying material:
52 to 63 inches—red silt loam saprolite that has light reddish brown mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Tarrus soils that are on ridge shoulders and have soft bedrock at a depth of 40 to 60 inches

Similar:
- Georgeville soils that have a surface layer of very fine sandy loam, loam, or gravelly texture
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Woodland, pasture and hayland, cropland, and urban development

Cropland

Major crops: Corn, soybeans, tobacco, and small grain
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns:
- There are no significant limitations affecting woodland management.

Management measures and considerations:
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GaC—Georgeville silt loam, 8 to 15 percent slopes

Setting

Landscape: Piedmont Slate Belt, mainly in the central part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 200 acres

Composition

Georgeville soil and similar soils: 87 percent
Contrasting inclusions: 13 percent

Typical Profile

Surface layer:
0 to 6 inches—yellowish brown silt loam

Subsurface layer:
6 to 13 inches—yellowish red silt loam

Subsoil:
13 to 48 inches—red clay
48 to 52 inches—red silty clay loam that has yellowish red mottles

Underlying material:
52 to 63 inches—red silt loam saprolite that has light reddish brown mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Tarrus soils that are on ridge shoulders and have soft bedrock at a depth of 40 to 60 inches
- Badin soils that are on the more sloping parts of the map unit and have soft bedrock at a depth of 20 to 40 inches

Similar:
- Georgeville soils that have a surface layer of fine sandy loam, loam, or gravelly texture
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Woodland, pasture and hayland, cropland, and urban development

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns:
- There are no significant limitations affecting woodland management.

Management measures and considerations:
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, slope, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve the performance of septic tank absorption fields.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GbC—Georgeville silt loam, 4 to 15 percent slopes, extremely stony

Setting

Landscape: Piedmont Slate Belt, mainly in the southern part of the county
Landform: Narrow ridges
Landform position: Convex summits
Shape of areas: Long and narrow
Size of areas: 5 to 200 acres

Composition

Georgeville soil and similar soils: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—strong brown silt loam

Subsurface layer:
4 to 12 inches—brownish yellow silt loam

Subsoil:
12 to 29 inches—yellowish red clay
29 to 48 inches—red silty clay loam that has brown and yellow mottles

Underlying material:
48 to 62 inches—red silt loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Stoniness: About 3 to 15 percent surface stones and cobbles that average about 14 inches in diameter and 3 to 25 feet apart
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are in areas around rock outcrops
- Random areas of Tarrus soils that have soft bedrock at a depth of 40 to 60 inches

Similar:
- Soils that have a strong brown subsoil

Use and Management

Major Uses: Woodland, pasture, and urban development

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Removing the larger stones and limiting the use of equipment to the larger open areas help to improve soil workability.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:

- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- It may be necessary to remove the larger stones or limit the use of equipment to the larger open areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderate
Management concerns: Equipment use and competition from undesirable plants
Management measures and considerations:
- Logging roads and skid trails may not be feasible within this map unit, and, if used, require special design and layout. Skidding and cabling distances that are longer than usual are required.
- Planting trees by machine and mechanical site preparation are not feasible. Tracked equipment should not be used, and sharp stones may cause damage to rubber-tired equipment.
- Prescribed burning helps to reduce plant competition with hardwood species.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, low strength, corrosivity, and large stones
Management measures and considerations:
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Carefully planning the location of roads helps to minimize the needed removal of large stones.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: VIs
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GdE—Georgeville silt loam, 15 to 45 percent slopes, extremely bouldery

Setting

Landscape: Piedmont Slate Belt, mainly in the southern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes

Shape of areas: Oblong or irregular
Size of areas: 25 to 500 acres

Composition

Georgeville soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 4 inches—strong brown silt loam

Subsurface layer:
4 to 12 inches—brownish yellow silt loam

Subsoil:
12 to 29 inches—red clay
29 to 48 inches—red silty clay loam

Underlying material:
48 to 62 inches—red silt loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Rapid
Stoniness: About 3 to 15 percent surface stones and boulders that average about 24 to 48 inches in diameter and 8 to 25 feet apart
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are on nose slopes and toeslopes
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are on shoulders

Similar:
- Soils that have a strong brown subsoil

Use and Management

Major Uses: Woodland

Cropland

Major crops: None
Suitability: Unsuited
Management concerns: Erodibility and equipment use
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Unsuited
Management concerns: Erodibility and equipment use
Management measures and considerations:
- This map unit is severely limited for the production of pasture and hay crops because of the slope. A site should be selected on better suited soils.

Woodland

Suitability: Suited
Productivity: Moderate
Management concerns: Erodibility, equipment use, and competition from undesirable plants
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Logging roads and skid trails may not be feasible within this map unit, and, if used, require special design and layout.
- Planting trees by machine and mechanical site preparation are not feasible. Tracked equipment should not be used, and sharp stones may cause damage to rubber-tired equipment.
- Prescribed burning helps to reduce plant competition with hardwood species.

Urban Development

Suitability: Poorly suited
Management concerns: Restricted permeability, low strength, corrosivity, large stones, and slope
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Designing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: VIIs
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

GeB2—Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont Slate Belt, mainly in the central part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Irregular

Size of areas: 10 to 350 acres

Composition

Georgeville soil and similar soils: 97 percent
Contrasting inclusions: 3 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish red silty clay loam

Subsoil:
8 to 30 inches—red clay
30 to 44 inches—red silty clay loam that has reddish yellow mottles

Underlying material:
44 to 63 inches—red silt loam saprolite that has light reddish brown and very pale brown mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Tarrus soils that are on ridge shoulders and have soft bedrock at a depth of 40 to 60 inches
- Badin soils that are on the more sloping parts of the map unit and have soft bedrock at a depth of 20 to 40 inches

Similar:
- Georgeville soils that have a gravelly surface layer
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development (fig. 10)

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Figure 10.—An area of Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded, used for poultry production.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Equipment use and seedling survival
Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

GeC2—Georgeville silty clay loam, 8 to 15 percent slopes, moderately eroded

Setting

Landscape: Piedmont Slate Belt, mainly in the central part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Georgeville soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish red silty clay loam

Subsoil:
8 to 30 inches—red clay
30 to 44 inches—red silty clay loam

Underlying material:
44 to 63 inches—red silt loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium

Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Tarrus soils that are on ridge shoulders and have soft bedrock at a depth of 40 to 60 inches
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are on the more sloping parts of the map unit

Similar:
- Georgeville soils that have a gravelly surface layer
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, urban development, and woodland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.

- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, slope, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve the performance of septic tank absorption fields.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

GgB—Georgeville gravelly silt loam, 2 to 8 percent slopes

Setting

Landscape: Piedmont Slate Belt, mainly in the southern part of the county along the Moore County line
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 150 acres

Composition

Georgeville soil and similar soils: 95 percent
Contrasting inclusions: 5 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish red gravelly silt loam

Subsoil:
8 to 27 inches—red clay that has yellowish red mottles
27 to 43 inches—red clay that has brownish yellow mottles
43 to 59 inches—red silty clay loam that has brownish yellow and yellowish brown mottles

Underlying material:
59 to 78 inches—red silt loam saprolite that has brownish yellow and weak red mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are on ridge shoulders

Similar:
- Georgeville soils that have a surface layer of silty clay loam
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Pasture and hayland, cropland, woodland, and urban development

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns:
- There are no significant limitations affecting woodland management.

Management measures and considerations:
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GgC—Georgeville gravelly silt loam, 8 to 15 percent slopes

Setting

Landscape: Piedmont Slate Belt, mainly in the southern part of the county along the Moore County line
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 75 acres

Composition

Georgeville soil and similar soils: 87 percent
Contrasting inclusions: 13 percent

Typical Profile

Surface layer:
0 to 8 inches—yellowish red gravelly silt loam

Subsoil:
8 to 27 inches—red clay that has yellowish red mottles
27 to 43 inches—red clay that has brownish yellow mottles
43 to 59 inches—red silty clay loam that has brownish yellow and yellowish brown mottles

Underlying material:
59 to 78 inches—red silt loam saprolite that has brownish yellow and weak red mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained

Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium
Parent material: Residuum weathered from felsic volcanic rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are on ridge shoulders
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are on the more sloping parts of the map unit

Similar:
- Georgeville soils that have a surface layer of silty clay loam
- Soils that have a reddish yellow subsoil

Use and Management

Major Uses: Woodland, pasture and hayland, cropland, and urban development

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns:
- There are no significant limitations affecting woodland management.

Management measures and considerations:
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, slope, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Installing distribution lines on the contour helps to improve the performance of septic tank absorption fields.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

GmC—Georgeville-Urban land complex, 2 to 10 percent slopes

Setting

Landform: Piedmont uplands, mainly in and around Asheboro, Randleman, and Liberty
Landscape position: Broad ridges
Shape of areas: Rectangular or irregular
Size of areas: 5 to 250 acres

Composition

Georgeville soil and similar inclusions: 55 percent
Urban land: 30 percent
Dissimilar inclusions: 15 percent

Typical Profile

Georgeville
Surface layer:
0 to 8 inches—yellowish red silty clay loam

Subsoil:
8 to 30 inches—red clay
30 to 44 inches—red silty clay loam

Underlying material:
44 to 63 inches—red silt loam saprolite

Urban land

Urban land consists of areas that are mostly covered by commercial, industrial, or other urban buildings, paved streets and sidewalks, paved parking lots, closely spaced houses, or other impervious material so that identification of the natural soil is not feasible.

Soil Properties and Qualities

Depth class: Georgeville—very deep; Urban land—not applicable
Permeability: Georgeville—moderate; Urban land—not applicable
Depth to high water table: Georgeville—more than 6.0 feet; Urban land—not applicable
Flooding: None
Shrink-swell potential: Georgeville—low; Urban land—not applicable
Slope class: Gently sloping
Surface runoff: Georgeville—medium; Urban land—very rapid
Parent material: Georgeville—residuum weathered from felsic volcanic rocks; Urban land—not applicable
Depth to bedrock: Georgeville—more than 60 inches; Urban land—not applicable

Minor Components

Contrasting:
- Random areas of Badin soils that have soft bedrock at a depth of 20 to 40 inches
- Random areas of Tarrus soils that have soft bedrock at a depth of 40 to 60 inches
- Random areas of Mecklenburg soils that have slow permeability
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in areas around the head of drainageways

Similar:
- Georgeville soils that have a surface layer of silt loam
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Urban development

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Limited size of natural soil areas
Management measures and considerations:
- Managing this map unit for crop production is generally not feasible because of the limited size of natural soil areas and intermittent areas of Urban land.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Limited size of natural soil areas
Management measures and considerations:
- Managing this map unit for the production of pasture and hay crops is generally not feasible because of the limited size of natural soil areas and intermittent areas of Urban land.

Woodland

Suitability: Poorly suited
Productivity: Not applicable
Management concerns: Limited size of natural soil areas

Management measures and considerations:
- Managing this map unit for timber production is rarely feasible because of the limited size of natural soil areas and intermittent areas of Urban land, but trees can be planted primarily for esthetic value.

Urban Development

Suitability: Georgeville—suited; Urban land—not applicable
Management concerns: Limited size of natural soil areas, restricted permeability, corrosivity, and low strength
Management measures and considerations:
- Vegetating cleared and graded areas as soon as possible or constructing silt fences helps to maintain soil stability and keep sediment on site.
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: Georgeville—IIIe; Urban land—VIIIs
Woodland ordination symbol: None assigned

GoC—Goldston very channery silt loam, 4 to 15 percent slopes

Setting

Landscape: Piedmont Slate Belt, mainly in the southern part of the county
Landform: Narrow ridges
Landform position: Convex summits and side slopes
Shape of areas: Long and narrow or irregular
Size of areas: 5 to 50 acres

Composition

Goldston soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—light yellowish brown very channery silt loam

Subsoil:
10 to 16 inches—strong brown very channery silt loam

Bedrock:
16 to 23 inches—weathered, moderately fractured metavolcanic rocks
23 inches—unweathered, slightly fractured metavolcanic rocks

Soil Properties and Qualities

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Rapid
Parent material: Residuum weathered from felsic volcanic rocks and interbedded sedimentary rocks in the Carolina Slate Belt
Depth to bedrock: 10 to 20 inches to soft bedrock; more than 20 inches to hard bedrock

Inclusions

Contrasting:
- Badin soils that have a red clayey subsoil, have soft bedrock at a depth of 20 to 40 inches, and are on footslopes
- Tarrus soils that have a red clayey subsoil, have soft bedrock at a depth of 40 to 60 inches, and are on shoulders
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in concave areas, at the head of drainageways, and along drainageways
- Random areas of rock outcrops

Similar:
- Random areas of soils that have hard bedrock within a depth of 20 inches

Use and Management

Major Uses: Woodland and pasture

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Erodibility, rooting depth, and soil fertility
Management measures and considerations:
- Resource management systems that include conservation tillage, crop residue management, stripcropping, and sod-based rotations help to reduce the hazard of erosion, control surface runoff, and maximize the infiltration of water.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Because of the shallow rooting depth, managing this map unit for economical crop production is difficult.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, rooting depth, and soil fertility
Management measures and considerations:
- Because of the shallow rooting depth, managing this map unit for the economical production of pasture and hay crops is difficult.
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Seedling survival and windthrow hazard
Management measures and considerations:
- Planting improved varieties of loblolly pine helps to increase productivity.
- Maintaining surface litter helps to increase water infiltration and reduces seedling mortality rates.
- Periodically harvesting windthrown trees helps to increase soil productivity.
- Extra care is needed in maintaining roads and fire lanes because of the windthrow potential.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Depth to bedrock
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: IVs
Woodland ordination symbol: 7D, based on loblolly pine as the indicator species

GoE—Goldston very channery silt loam, 15 to 50 percent slopes

Setting

Landscape: Piedmont Slate Belt, mainly in the southern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 50 acres

Composition

Goldston soil and similar soils: 75 percent
Contrasting inclusions: 25 percent

Typical Profile

Surface layer:
0 to 10 inches—light yellowish brown very channery silt loam

Subsoil:
10 to 16 inches—strong brown channery silt loam

Bedrock:
16 to 23 inches—weathered, moderately fractured metavolcanic rocks
23 inches—unweathered, slightly fractured metavolcanic rocks

Soil Properties and Qualities

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Rapid
Parent material: Residuum weathered from felsic volcanic and interbedded sedimentary rocks in the Carolina Slate Belt
Depth to bedrock: 10 to 20 inches to soft bedrock; more than 20 inches to hard bedrock

Inclusions

Contrasting:
- Badin soils that have a red clayey subsoil, have soft bedrock at a depth of 20 to 40 inches, and are on footslopes
- Tarrus soils that have a red clayey subsoil, have soft bedrock at a depth of 20 to 40 inches, and are on shoulders
- The moderately well drained or somewhat poorly drained Callison and Lignum soils in concave areas, at the head of drainageways, and along drainageways
- Random areas of rock outcrops

Similar:
- Random areas of soils that have hard bedrock within a depth of 20 inches

Use and Management

Major Uses: Woodland

Cropland

Major crops: None
Suitability: Unsuited
Management concerns: Equipment use, rooting depth, soil fertility, and erodibility
Management measures and considerations:
- This map unit has severe limitations affecting crop production. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—poorly suited; hayland—unsuited
Management concerns: Equipment use, rooting depth, soil fertility, and erodibility
Management measures and considerations:
- This map unit has severe limitations affecting the production of pasture and hay crops. A site should be selected on better suited soils.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Erodibility, equipment use, seedling survival, and windthrow hazard
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.

- Using cable logging methods helps to overcome the equipment limitation and prevents the acceleration of erosion caused by road construction, use of skid trails, and disturbance of the forest floor by heavy machinery.
- Maintaining surface litter helps to increase water infiltration and reduces seedling mortality rates.
- Periodically harvesting windthrown trees helps to increase soil productivity.
- Extra care is needed in maintaining roads and fire lanes because of the windthrow potential.

Urban Development

Suitability: Poorly suited
Management concerns: Depth to bedrock
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: VIIs
Woodland ordination symbol: 7D, based on loblolly pine as the indicator species

HeB—Helena sandy loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 100 acres

Composition

Helena soil and similar soils: 81 percent
Contrasting inclusions: 19 percent

Typical Profile

Surface layer:
0 to 8 inches—brown sandy loam

Subsurface layer:
8 to 12 inches—very pale brown sandy loam

Subsoil:
12 to 17 inches—brownish yellow sandy clay loam
17 to 20 inches—brownish yellow sandy clay that has light gray mottles
20 to 42 inches—light gray clay that has strong brown mottles

Underlying material:
42 to 60 inches—yellow sandy loam saprolite that has few veins of gray clay

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow

High water table (depth, period, type): 1.5 to 2.5 feet from January through April, perched
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The well drained Appling soils on the higher parts of the landform
- The well drained Vance soils on knolls
- Random areas of the well drained Rion soils that have a loamy subsoil
- The well drained Enon and Wynott soils that have very slow permeability and a high shrink-swell potential

Similar:
- Soils that have less acidity in the subsoil than the Helena soil

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Tobacco, corn, and small grain
Suitability: Well suited
Management concerns: Erodibility, soil fertility, and wetness
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Planting wetness-tolerant species in undrained areas helps to improve soil productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility, soil fertility, and wetness
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants

Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent the rutting and soil compaction that can occur when the soil is saturated.

Urban Development

Suitability: Poorly suited
Management concerns: Wetness, restricted permeability, and shrink-swell potential
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Increasing the size of the absorption fields and installing distribution lines on the contour help to improve the performance of septic tank absorption fields.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Building structures on the highest part of the landform and providing artificial drainage help to reduce the risk of damage caused by wetness.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

HeC—Helena sandy loam, 6 to 10 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Elongated
Size of areas: 5 to 50 acres

Composition

Helena soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 8 inches—brown sandy loam

Subsurface layer:
8 to 12 inches—very pale brown sandy loam

Subsoil:
12 to 17 inches—brownish yellow sandy clay loam
17 to 20 inches—brownish yellow sandy clay that has light gray mottles
20 to 42 inches—light gray clay that has strong brown mottles

Underlying material:
42 to 60 inches—yellow sandy loam saprolite that has few veins of gray clay

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
High water table (depth, period, type): 1.5 to 2.5 feet from January through April, perched
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Rapid
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of soils that have soft bedrock at a depth of 20 to 40 inches
- The well drained Vance soils on shoulders

Similar:
- Soils that have less acidity in the subsoil than the Helena soil
- Helena soils that have a surface layer of loamy sand

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Tobacco, corn, and small grain
Suitability: Well suited
Management concerns: Erodibility, soil fertility, and wetness
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Planting wetness-tolerant species in undrained areas helps to improve soil productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility, soil fertility, and wetness
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants

Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Restricting the use of standard wheeled and tracked equipment to dry periods helps to prevent the rutting and soil compaction that can occur when the soil is saturated.

Urban Development

Suitability: Poorly suited
Management concerns: Wetness, restricted permeability, and shrink-swell potential
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Increasing the size of the absorption fields and installing distribution lines on the contour help to improve the performance of septic tank absorption fields.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Building structures on the highest part of the landform and providing artificial drainage help to reduce the risk of damage caused by wetness.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

MaC—Mecklenburg loam, 8 to 15 percent slopes

Setting

Landscape: Piedmont, mainly in the northwestern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Mecklenburg soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown loam

Subsurface layer:
3 to 7 inches—reddish yellow loam

Subsoil:
7 to 23 inches—red clay
23 to 33 inches—red clay that has reddish yellow mottles
33 to 50 inches—red clay loam

Underlying material:
50 to 61 inches—clay loam saprolite that is multicolored in shades of white, yellow, brown, and red

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Wynott soils that have soft bedrock at a depth of 20 to 40 inches, have a strong brown subsoil, and are on the more sloping parts of the map unit
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are along the contact zones with slate rocks
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are along the contact zones with slate rocks
- Wilkes soils that have soft bedrock within a depth of 20 inches, have a strong brown subsoil, and are on the more sloping parts of the map unit

Similar:
- Mecklenburg soils that have a surface layer of fine sandy loam
- Soils that have a strong brown subsoil

Use and Management

Major Uses: Woodland, urban development, and pasture and hayland

Cropland

Major crops: None
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Restricted permeability, shrink-swell potential, low strength, slope, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

MaD—Mecklenburg loam, 15 to 25 percent slopes

Setting

Landscape: Piedmont, mainly in the northwestern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Irregular
Size of areas: 10 to 100 acres

Composition

Mecklenburg soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 3 inches—red clay loam

Subsurface layer:
3 to 7 inches—dark yellowish brown loam

Subsoil:
7 to 23 inches—red clay
23 to 33 inches—red clay that has reddish yellow mottles
33 to 50 inches—red clay loam

Underlying material:
50 to 61 inches—clay loam saprolite that is multicolored in shades of white, yellow, brown, and red

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Wynott soils that have soft bedrock at a depth of 20 to 40 inches, have a strong brown subsoil, and are on nose slopes
- Wilkes soils that have soft bedrock within a depth of 20 inches, have a strong brown subsoil, and are on toeslopes

Similar:
- Mecklenburg soils that have a surface layer of fine sandy loam or stony texture
- Soils that have a strong brown subsoil

Use and Management

Major Uses: Woodland and pasture

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Erodibility and equipment use
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—suited; hayland—poorly suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits the use of equipment in the steeper areas.
- Applying lime, fertilizer, seed, and herbicides by hand helps to increase productivity in the steeper areas.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Erodibility, equipment use, and competition from undesirable plants
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited
Management concerns: Slope, restricted permeability, low strength, shrink-swell potential, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the slope and restricted permeability. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Grading or land shaping prior to construction helps to reduce damage from surface water and prevents erosion.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

MeB2—Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 900 acres

Composition

Mecklenburg soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—red clay loam

Subsoil:
3 to 10 inches—red clay loam
10 to 25 inches—red clay
25 to 35 inches—red clay that has reddish yellow mottles

Underlying material:
35 to 62 inches—red loam saprolite that has reddish yellow mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Medium
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Wynott soils that have soft bedrock at a depth of 20 to 40 inches, have a strong brown subsoil, and are in areas around the head of drainageways
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are along the contact zones with slate rocks
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are along the contact zones with slate rocks
- Wilkes soils that have soft bedrock within a depth of 20 inches, have a strong brown subsoil, and are on the more sloping parts of the map unit

Similar:
- Mecklenburg soils that have a surface layer of loam
- Soils that have a strong brown subsoil

Use and Management

Major Uses: Cropland, pasture and hayland (fig. 11), woodland, and urban development

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.

Figure 11.—Fescue hayland in an area of Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Restricted permeability, shrink-swell potential, low strength, corrosivity, and erodibility
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Vegetating cleared and graded areas as soon as possible or constructing silt fences helps to maintain soil stability and keeps sediment on site.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

MeC2—Mecklenburg clay loam, 8 to 15 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Mecklenburg soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—red clay loam

Subsoil:
3 to 10 inches—red clay loam
10 to 25 inches—red clay
25 to 35 inches—red clay that has reddish yellow mottles

Underlying material:
35 to 62 inches—red loam saprolite that has reddish yellow mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Medium
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Wynott soils that have soft bedrock at a depth of 20 to 40 inches and have a strong brown subsoil
- Badin soils that have soft bedrock at a depth of 20 to 40 inches and are along the contact zones with slate rocks
- Tarrus soils that have soft bedrock at a depth of 40 to 60 inches and are along the contact zones with slate rocks
- Wilkes soils that have soft bedrock within a depth of 20 inches and are on the more sloping parts of the map unit

Similar:
- Mecklenburg soils that have a surface layer of dark red loam
- Soils that have a strong brown subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development

Cropland

Major crops: Corn, soybeans, and small grain
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Equipment use, seedling survival, and competition from undesirable plants
Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet helps to prevent rutting and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Restricted permeability, shrink-swell potential, low strength, slope, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Designing structures so that they conform to the natural slope helps to improve soil performance.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

MkC—Mecklenburg-Urban land complex, 2 to 10 percent slopes

Setting

Landscape: Piedmont uplands, mainly in and around Archdale
Landform: Broad to narrow ridges
Landform position: Convex summits
Shape of areas: Rectangular
Size of areas: 5 to 250 acres

Composition

Mecklenburg soil and similar soils: 50 percent
Urban land: 30 percent
Contrasting inclusions: 20 percent

Typical Profile

Mecklenburg
Surface layer:
0 to 3 inches—red clay loam

Subsoil:
3 to 10 inches—red clay loam
10 to 25 inches—red clay
25 to 35 inches—red clay that has reddish yellow mottles

Underlying material:
35 to 62 inches—red loam saprolite that has reddish yellow mottles

Urban land
Urban land consists of areas that are mostly covered by commercial, industrial, or other urban buildings, paved streets and sidewalks, paved parking lots, closely spaced houses, or other impervious material so that identification of the natural soil is not feasible.

Soil Properties and Qualities

Depth class: Mecklenburg—very deep; Urban land—not applicable
Drainage class: Mecklenburg—well drained; Urban land—not applicable
Permeability: Mecklenburg—slow; Urban land—not applicable
Depth to high water table: Mecklenburg—more than 6.0 feet; Urban land—not applicable
Flooding: None
Shrink-swell potential: Mecklenburg—moderate; Urban land—not applicable
Parent material: Mecklenburg—residuum weathered from mafic or intermediate igneous and metamorphic rocks; Urban land—not applicable
Depth to bedrock: Mecklenburg—more than 60 inches; Urban land—not applicable

Inclusions

Contrasting:
- The moderately well drained Helena soils in depressions and along drainageways
- Random areas of Enon soils that have a brown subsoil and very slow permeability
- Random areas of Wynott soils that have soft bedrock at a depth of 20 to 40 inches

Similar:
- Random areas of Mecklenburg soils that have a surface layer of loam or sandy loam

Use and Management

Major Uses: Urban development

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Limited size of natural soil areas
Management measures and considerations:
- Managing this map unit for crop production is generally not feasible because of the limited size of natural soil areas and intermittent areas of Urban land.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Limited size of natural soil areas
Management measures and considerations:
- Managing this map unit for the production of pasture and hay crops is generally not feasible because of the limited size of natural soil areas and intermittent areas of Urban land.

Woodland

Suitability: Poorly suited
Productivity: Not applicable
Management concerns: Limited size of natural soil areas
Management measures and considerations:
- Managing this map unit for timber production is rarely feasible because of the limited size of natural soil areas and intermittent areas of Urban land, but trees can be planted primarily for their esthetic value.

Urban Development

Suitability: Mecklenburg—poorly suited; Urban land—not applicable
Management concerns: Mecklenburg—shrink-swell potential, restricted permeability, erodibility, low strength, and corrosivity; Urban land—not applicable
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Vegetating cleared and graded areas as soon as possible or constructing silt fences helps to maintain soil stability and keeps sediment on site.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: Mecklenburg—IIIe; Urban land—VIIIs
Woodland ordination symbol: None assigned

PaC—Pacolet fine sandy loam, 8 to 15 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Irregular
Size of areas: 5 to 30 acres

Composition

Pacolet soil and similar soils: 70 percent
Contrasting inclusions: 30 percent

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown fine sandy loam

Subsurface layer:
3 to 12 inches—dark yellowish brown fine sandy loam

Subsoil:
12 to 20 inches—red clay
20 to 37 inches—yellowish red sandy clay loam

Underlying material:
37 to 63 inches—yellowish red sandy loam saprolite that has yellow mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium or rapid
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Cecil soils that have a solum that is 40 to 60 inches thick
- Random areas of Enon soils that have slow permeability, a strong brown subsoil, and less acidity in the lower part of the subsoil than the Pacolet soil

Similar:
- Random areas of soils that have a reddish yellow subsoil
- Pacolet soils that have a surface layer of sandy clay loam

Use and Management

Major Uses: Woodland, cropland, and pasture and hayland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility

Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns:
- There are no significant limitations affecting woodland management.

Management measures and considerations:
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Suited
Management concerns: Restricted permeability, slope, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

PaD—Pacolet fine sandy loam, 15 to 30 percent slopes

Setting

Landscape: Piedmont, mainly in the northern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 50 acres

Composition

Pacolet soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown fine sandy loam

Subsurface layer:
3 to 12 inches—dark yellowish brown fine sandy loam

Subsoil:
12 to 20 inches—red clay
20 to 37 inches—yellowish red sandy clay loam

Underlying material:
37 to 63 inches—yellowish red sandy loam saprolite that has yellow mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Rapid
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Enon soils that have slow permeability, a strong brown subsoil, and more acidity in the lower part of the subsoil than the Pacolet soil
- Random areas of Poindexter soils that have less clay than the Pacolet soil and have a strong brown subsoil

Similar:
- Random areas of soils that have a reddish yellow subsoil

Use and Management

Major Uses: Woodland and pasture

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—suited; hayland—poorly suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits the use of equipment in the steeper areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Slope, low strength, and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing the distribution lines on the contour helps to improve the performance of septic tank absorption fields.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

Pt—Pits, quarry

Setting

Landscape: Piedmont uplands throughout the county; largest quarries at Parks Crossroads and northwest of Asheboro
Landform: Broad ridges and side slopes
Shape of areas: Rectangular or irregular
Size of areas: 4 to 100 acres

Composition

This map unit consists of excavated areas where the soil has been removed and the underlying bedrock has been mined for use mostly as construction aggregate or as block granite. Pits are as much as 250 feet or more deep, and most have nearly vertical side walls. Most abandoned quarries are filled with water.

Inclusions

Contrasting:
- Areas of undisturbed soils on the outer edge of map units

- Rubble and spoil embankments on the outer edge of map units
- Random areas that have been graded or filled to facilitate quarrying operations

Use and Management

This map unit is mainly used for mining. It is unsuited to cropland, pasture and hayland, and woodland. The exposed rock and rock rubble cannot support significant plant growth. Areas of this unit are also unsuited to urban development because of the open pits, exposed rock, and rock rubble. Recommendations for reclamation and use of this map unit require onsite examination.

Interpretive Groups

Land capability classification: VIIIs
Woodland ordination symbol: None assigned

RnC—Rion loamy sand, 8 to 15 percent slopes

Setting

Landscape: Piedmont, mainly in the eastern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Composition

Rion soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—brown loamy sand

Subsurface layer:
10 to 14 inches—pale brown loamy sand

Subsoil:
14 to 22 inches—brownish yellow sandy clay loam
22 to 32 inches—strong brown sandy clay loam

Underlying material:
32 to 60 inches—strong brown sandy loam saprolite that has white mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium or rapid
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Appling soils that have a clayey subsoil, have saprolite below a depth of 40 inches, and are on the higher parts of the landform
- Vance soils that have a clayey subsoil and are on toeslopes
- The moderately well drained Helena soils that have a clayey subsoil and are along drainageways
- Random areas of Rion soils that have stones or boulders; indicated by a special symbol on the detailed soil maps

Similar:
- Rion soils that have a surface layer of sandy loam

Use and Management

Major Uses: Cropland, pasture and hayland, and woodland

Cropland

Major crops: Tobacco, corn, and small grain
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, soil fertility, and equipment use
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope.

- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Suited
Management concerns: Slope and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing distribution lines on the contour helps to improve the performance of septic tank absorption fields.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 8A, based on loblolly pine as the indicator species

RnD—Rion loamy sand, 15 to 25 percent slopes

Setting

Landscape: Piedmont, mainly in the eastern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 10 to 200 acres

Composition

Rion soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—brown loamy sand

Subsurface layer:
10 to 14 inches—pale brown loamy sand

Subsoil:
14 to 22 inches—brownish yellow sandy clay loam
22 to 32 inches—strong brown sandy clay loam

Underlying material:
32 to 60 inches—strong brown sandy loam saprolite that has white mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Depth to high water table: More than 6.0 feet

Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium or rapid
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Random areas of Pacolet soils that have a red clayey subsoil and are on toeslopes
- The moderately well drained Helena soils in areas around the head of drainageways and along drainageways
- Random areas of Rion soils that have stones or boulders; indicated by a special symbol on the detailed soil maps

Similar:
- Rion soils that have a surface layer of sandy loam

Use and Management

Major Uses: Woodland

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Erodibility and equipment use
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—suited; hayland—poorly suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits the use of equipment in the steeper areas.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Erodibility and equipment use
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited
Management concerns: Slope and corrosivity
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Installing distribution lines on the contour helps to improve the performance of septic tank absorption fields.
- Grading or land shaping prior to construction helps to reduce damage from surface water and prevents erosion.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 8R, based on loblolly pine as the indicator species

RvA—Riverview sandy loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Piedmont, along major streams
Landform: Flood plains
Landform position: Planar to slightly convex slopes
Shape of areas: Long and narrow
Size of areas: 10 to 250 acres

Composition

Riverview soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown sandy loam

Subsoil:
8 to 16 inches—dark yellowish brown loam that has dark brown mottles
16 to 36 inches—dark yellowish brown sandy clay loam that has dark brown and yellowish brown mottles

Underlying material:
36 to 40 inches—yellowish brown sandy loam
40 to 60 inches—strong brown sandy clay loam that has strata of sandy clay

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
High water table (depth, period): 3.0 to 4.0 feet from December through March

Flooding (frequency, period, duration): Frequent from December through March, 2 to 7 days
Shrink-swell potential: Low
Surface runoff: Slow
Parent material: Recent alluvium
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The somewhat poorly drained Chewacla soils in depressional areas
- The moderately well drained Dogue soils in the slightly higher landform positions

Similar:
- Riverview soils that have a surface layer of loam or silt loam

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn, soybeans, small grain
Suitability: Poorly suited
Management concerns: Flooding
Management measures and considerations:
- Harvesting row crops as soon as possible helps to reduce the risk of damage from possible flooding.
- Providing outlets for surface water by land shaping or grading helps to eliminate ponding.

Pasture and Hayland

Suitability: Suited
Management concerns: Flooding, wetness, and ponding
Management measures and considerations:
- Harvesting hay crops as soon as possible helps to reduce the risk of damage from flooding.
- Flooding may be a hazard for livestock.
- Preventing overgrazing or preventing grazing when the soil is too wet helps to prevent soil compaction, decreased productivity, and a rough soil surface.
- Providing outlets for surface water by land shaping or grading helps to eliminate ponding.

Woodland

Suitability: Well suited
Productivity: High
Management concerns: Competition from undesirable plants and equipment use
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Restricting logging operations to periods when the soil is not saturated helps to prevent rutting and damage to tree roots due to soil compaction.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Unsuited
Management concerns: Flooding and wetness

Management measures and considerations:

- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.
- Well compacted fill material should be used as road base so that roads are above the level of flooding.

Interpretive Groups

Land capability classification: IIIw
Woodland ordination symbol: 11A, based on loblolly pine as the indicator species

ShA—Shellbluff silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Piedmont, along major streams and rivers
Landform: Flood plains
Landform position: Planar to slightly convex slopes
Shape of areas: Long and narrow
Size of areas: 20 to 200 acres

Composition

Shellbluff soil: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsoil:
4 to 27 inches—strong brown silt loam that has yellowish brown and pale brown mottles
27 to 38 inches—light olive brown silt loam that has very pale brown mottles

Underlying material:
38 to 60 inches—light olive brown silt loam that has pale brown and light gray mottles

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
High water table (depth, period, type): 3 to 5 feet from December through April, apparent
Flooding (frequency, period, duration): Occasional from December through April, brief
Shrink-swell potential: Low
Hazard of water erosion: None or slight
Slope class: Nearly level
Surface runoff: Slow
Parent material: Recent alluvium
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The somewhat poorly drained Chenneby soils on the lower parts of the landform
- Moderately well drained soils on the lower parts of the landform
- Sandy soils adjacent to the larger stream channels
- Small areas of poorly drained, loamy soils in depressions and at the foot of upland slopes

Use and Management

Major Uses: Woodland, cropland, and pasture and hayland

Cropland

Suitability: Well suited
Management concerns: Flooding and wetness
Management measures and considerations:
- Flood-control measures are needed to reduce damage to crops.
- Harvesting row crops as soon as possible helps to reduce the risk of damage from flooding.
- Winter cover crops, crop residue management, and conservation tillage help to control erosion and conserve moisture.
- Rotations of grasses and legumes help to reduce erosion and maintain soil fertility.
- Restricting tillage to dry periods and using low-pressure ground equipment help to minimize rutting, compaction, and clodding.

Pasture and Hayland

Suitability: Well suited
Management concerns: Flooding
Management measures and considerations:
- Flooding may be a hazard for livestock.
- Intensive grazing practices can maximize forage utilization and improve forage quality.
- Preventing overgrazing, preventing grazing during wet periods, using low-pressure ground equipment, sod management, and controlling weeds help to minimize compaction and provide quality forage.

Woodland

Suitability: Well suited
Productivity: High
Management concerns:
- This map unit has few limitations affecting woodland management.

Management measures and considerations:
- Restricting logging operations to periods when the soil is not wet and using low-pressure ground equipment help to minimize rutting and compaction.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants and seedling mortality rates.
- Maintaining filter strips of natural vegetation helps to reduce siltation and maintain water temperature along intermittent and perennial streams.
- Ground surface disturbance in filter strips should be kept to a minimum.

Urban Development

Suitability: Poorly suited
Management concerns: Flooding and wetness

Management measures and considerations:
- This map unit is not recommended for urban development. A site on better suited soils should be considered.
- Building structures on the highest part of the landform and using artificial drainage help to reduce the risk of damage caused by wetness.
- Land shaping may be needed to remove excess surface water or direct it away from structures.
- The county building inspector should be contacted; a permit may be required bedfore constructing buildings in areas that flood.
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Flood-control structures may be needed.

Interpretive Groups

Land capability classification: IIw
Woodland ordination symbol: 10A, based on sweetgum as the indicator species

StB—State silt loam, 2 to 6 percent slopes

Setting

Landscape: Piedmont river and stream valleys
Landform: Stream terraces
Landform position: Convex summits
Shape of areas: Long and narrow
Size of areas: 5 to 10 acres

Composition

State soil and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown silt loam

Subsoil:
6 to 15 inches—dark yellowish brown silt loam
15 to 34 inches—strong brown sandy clay loam
34 to 47 inches—strong brown fine sandy loam that has light red mottles

Underlying material:
47 to 62 inches—mottled strong brown, pale brown, yellowish brown, and red sandy loam that has pockets of sandy clay loam

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
High water table (depth, period, type): 4 to 6 feet from December through June, apparent
Flooding: None
Shrink-swell potential: Low
Surface runoff: Slow
Parent material: Stratified fluvial sediments
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- The moderately well drained Dogue soils that have a clayey subsoil and are on the slightly lower parts of the landform

Similar:
- Random areas of soils that have a red subsoil

Use and Management

Major Uses: Cropland, woodland, and pasture and hayland

Cropland

Major crops: Corn and small grain
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests helps to increase the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: High
Management concerns:
- There are no significant limitations affecting woodland management.

Management measures and considerations:
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited
Management concerns: Wetness, corrosivity, and flooding
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Building structures on the highest part of the landform helps to reduce the risk of damage caused by flooding.
- Installing a subsurface drainage system helps to lower the high water table.

- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 10A, based on loblolly pine as the indicator species

Ud—Udorthents, loamy

Setting

Landscape: Piedmont
Landform: Mostly uplands where the natural soil has been excavated or depressions that have been covered by earthy fill material
Landform position: Variable; commonly convex or concave side slopes
Shape of areas: Irregular
Size of areas: 5 to 100 acres

Composition

Udorthents and similar soils: 90 percent
Contrasting inclusions: 10 percent

Typical Profile

Udorthents mainly consist of cut and fill areas where soil has been removed and placed on an adjacent site. To a lesser extent, they include landfills, borrow areas, and recreational areas, such as baseball fields. Udorthents have soil properties that vary from area to area, depending on the type of fill material used and the type of bedrock exposed at the surface.

Soil Properties and Qualities

Depth class: Moderately deep to very deep
Drainage class: Well drained or moderately well drained
Permeability: Moderate to slow
Depth to high water table: Variable; commonly more than 6.0 feet
Flooding: None
Shrink-swell potential: Low
Surface runoff: Medium or rapid
Parent material: Loamy fill material
Depth to bedrock: Variable; commonly more than 40 inches to soft bedrock

Inclusions

Contrasting:
- Random areas of Udorthents that have soft bedrock within a depth of 40 inches
- Udorthents that contain asphalt, wood, glass, and other waste materials

Use and Management

Major Uses: Urban land

Cropland

Suitability: Poorly suited
Management concerns: Highly disturbed soils, limited size of areas, and soil fertility
Management measures and considerations:
- This map unit is difficult to manage for crop production because of highly variable soil properties and the small size of its areas.

- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Highly disturbed soils, limited size of areas, and soil fertility
Management measures and considerations:

- This map unit is difficult to manage for the production of pasture and hay crops because of highly variable soil properties and the small size of its areas.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Poorly suited
Management concerns: Highly disturbed soils and limited size of areas
Management measures and considerations:

- This map unit is difficult to manage for timber production because of highly variable soil properties and the small size of its areas.

Urban Development

Suitability: Poorly suited
Management concerns: Highly disturbed soils and differential settling
Management measures and considerations:

- This map unit is severely limited for urban development because of highly variable soil properties and uneven settling.

Interpretive Groups

Land capability classification: VIIe
Woodland ordination symbol: None assigned

VaB—Vance sandy loam, 2 to 8 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern and east-central parts of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Round or irregular
Size of areas: 5 to 300 acres

Composition

Vance soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 4 inches—yellowish brown sandy loam

Subsoil:
4 to 20 inches—strong brown clay that has red mottles

20 to 25 inches—strong brown clay that has red and pink mottles
25 to 30 inches—strong brown sandy clay loam that has red mottles

Underlying material:
30 to 60 inches—multicolored sandy loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Medium
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Appling soils that have saprolite at a depth of more than 40 inches and are in landfrom positions similar to those of the Vance soil
- The moderately well drained Helena soils in concave areas, at the head of drainageways, and in the slightly lower landform positions

Similar:
- Vance soils that have a surface layer of fine sandy loam or sandy clay loam

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Well suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Restricted permeability, shrink-swell potential, corrosivity, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption field helps to improve the performance of septic tanks.
- Installing the distribution lines of septic systems during periods when the soil is not wet helps to prevent the smearing and sealing of trench walls.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 7A, based on loblolly pine as the indicator species

VaC—Vance sandy loam, 8 to 15 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern and east-central parts of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow or irregular
Size of areas: 10 to 100 acres

Composition

Vance soil and similar soils: 80 percent
Contrasting inclusions: 20 percent

Typical Profile

Surface layer:
0 to 4 inches—yellowish brown sandy loam

Subsoil:
4 to 20 inches—strong brown clay that has red mottles

20 to 25 inches—strong brown clay that has red and pink mottles
25 to 30 inches—strong brown sandy clay loam that has red mottles

Underlying material:
30 to 60 inches—multicolored sandy loam saprolite

Soil Properties and Qualities

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Moderate
Surface runoff: Rapid
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Depth to bedrock: More than 60 inches

Inclusions

Contrasting:
- Appling soils that have saprolite at a depth of more than 40 inches and are in landform positions similar to those of the Vance soil
- Cecil soils that have saprolite at a depth of more than 40 inches, have a red subsoil, and are on shoulders
- The moderately well drained Helena soils in concave areas, at the head of drainageways, and along drainageways
- Pacolet soils that have saprolite at a depth of 20 to 40 inches, have a red subsoil, and are on the steeper parts of the map unit

Similar:
- Vance soils that have a surface layer of fine sandy loam or sandy clay loam
- Soils that have saprolite at a depth of more than 40 inches and are in landform positions similar to those of the Vance soil

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.

- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Competition from undesirable plants
Management measures and considerations:
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Restricted permeability, shrink-swell potential, corrosivity, slope, and low strength
Management measures and considerations:
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Increasing the size of the absorption fields and installing distribution lines on the contour help to improve the performance of septic tank absorption fields.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 7A, based on loblolly pine as the indicator species

W—Water

This map unit consists of areas of water, including lakes and rivers. These areas occur throughout the county. The largest water areas in the county are the Deep River, the Uwharrie River, Back Creek Lake, and Lake Reese.

This map unit is not assigned a capability class or a woodland ordination symbol.

WpC—Wilkes-Poindexter-Wynott complex, 8 to 15 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern part of the county
Landform: Ridges and hillslopes

Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 10 to 100 acres

Composition

Wilkes soil and similar soils: 40 percent
Poindexter soil and similar soils: 30 percent
Wynott soil and similar soils: 10 percent
Contrasting inclusions: 20 percent

Typical Profile

Wilkes
Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 12 inches—strong brown sandy clay loam

Underlying material:
12 to 17 inches—sandy loam saprolite that is mottled in shades of black, white, strong brown, and grayish green

Bedrock:
17 to 45 inches—weathered, moderately fractured diabase
45 inches—unweathered, slightly fractured diabase

Poindexter
Surface layer:
0 to 4 inches—light yellowish brown loam

Subsurface layer:
4 to 12 inches—light yellowish brown fine sandy loam

Subsoil:
12 to 18 inches—yellow sandy clay loam
18 to 23 inches—mottled strong brown, yellowish red, and white sandy clay loam

Bedrock:
23 to 42 inches—weathered, moderately fractured diabase
42 inches—unweathered, slightly fractured diabase

Wynott
Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 7 inches—light olive brown sandy loam
7 to 14 inches—light olive brown loam that has light yellowish brown mottles

Subsoil:
14 to 24 inches—yellowish brown clay that has yellow and black mottles
24 to 28 inches—dark yellowish brown sandy clay loam

Bedrock:
28 to 60 inches—weathered, moderately fractured diabase

Soil Properties and Qualities

Depth class: Wilkes—shallow; Poindexter and Wynott—moderately deep
Drainage class: Well drained

Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Wilkes—moderate; Poindexter—low; Wynott—high
Surface runoff: Wilkes and Poindexter—rapid; Wynott—very rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wilkes—10 to 20 inches to soft bedrock and more than 20 inches to hard bedrock; Poindexter—20 to 40 inches to soft bedrock and 40 to 60 inches to hard bedrock; Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Enon soils that have soft bedrock at a depth of more than 60 inches
- Moderately well drained soils in concave areas, at the head of drainageways, and along drainageways

Similar:
- Wilkes, Poindexter, and Wynott soils that have a surface layer of sandy loam or clay loam

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Poorly suited
Management concerns: Erodibility, soil fertility, and rooting depth
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Because of the shallow rooting depth, managing this map unit for economical crop production is difficult.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Erodibility, rooting depth, slope, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Because of the shallow rooting depth, managing areas of the Wilkes soil for the economical production of pasture and hay crops is difficult.
- Applying lime and fertilizer according to recommendations based on soil tests

increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Wilkes and Wynott—windthrow hazard and competition from undesirable plants; Poindexter—competition from undesirable plants
Management measures and considerations:
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity of the Wilkes and Wynott soils.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Depth to bedrock, low strength, and corrosivity
Management measures and considerations:
- This map unit is severely limited for urban development because of the depth to bedrock. A site should be selected on better suited soils.
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Extensive blasting, land shaping, and grading are needed if roads are to be constructed on the contour.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: Wilkes—VIe; Poindexter and Wynott—IIIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 7D in areas of the Wilkes and Wynott soils and 6A in areas of the Poindexter soil

WpE—Wilkes-Poindexter-Wynott complex, 15 to 45 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Irregular
Size of areas: 10 to 300 acres

Composition

Wilkes soil and similar soils: 40 percent
Poindexter soil and similar soils: 40 percent
Wynott soil and similar soils: 7 percent

Contrasting inclusions: 13 percent

Typical Profile

Wilkes
Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 12 inches—strong brown sandy clay loam

Underlying material:
12 to 17 inches—sandy loam saprolite that is mottled in shades of black, white, strong brown, and grayish green

Bedrock:
17 to 45 inches—weathered, moderately fractured diabase
45 inches—unweathered, slightly fractured diabase

Poindexter
Surface layer:
0 to 4 inches—light yellowish brown loam

Subsurface layer:
4 to 12 inches—light yellowish brown fine sandy loam

Subsoil:
12 to 18 inches—yellow sandy clay loam
18 to 23 inches—mottled strong brown, yellowish red, and white sandy clay loam

Bedrock:
23 to 42 inches—weathered, moderately fractured diabase
42 inches—unweathered, slightly fractured diabase

Wynott
Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 7 inches—light olive brown sandy loam
7 to 14 inches—light olive brown loam that has light yellowish brown mottles

Subsoil:
14 to 24 inches—yellowish brown clay that has yellow and black mottles
24 to 28 inches—dark yellowish brown sandy clay loam

Bedrock:
28 to 60 inches—weathered, moderately hard diabase

Soil Properties and Qualities

Depth class: Wilkes—shallow; Poindexter and Wynott—moderately deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Wilkes—moderate; Poindexter—low; Wynott—high
Surface runoff: Wilkes and Poindexter—rapid; Wynott—very rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wilkes—10 to 20 inches to soft bedrock and more than 20 inches to hard bedrock; Poindexter—20 to 40 inches to soft bedrock and 40 to 60 inches to

hard bedrock; Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of soils that have a subsoil of sandy clay loam and have bedrock at a depth of more than 60 inches
- Riverview soils that have bedrock at a depth of more than 60 inches and are on adjacent narrow flood plains and along drainageways

Similar:
- Wilkes, Poindexter, and Wynott soils that have a surface layer of silt loam or fine sandy loam

Use and Management

Major Uses: Woodland

Cropland

Major crops: None
Suitability: Unsuited
Management concerns: Erodibility, equipment use, and rooting depth
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—poorly suited; hayland—unsuited
Management concerns: Erodibility, equipment use, and rooting depth
Management measures and considerations:
- This map unit is severely limited for the production of pasture and hay crops because of the slope. A site should be selected on better suited soils.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Wilkes and Wynott—erodibility, equipment use, windthrow hazard, and competition from undesirable plants; Poindexter—erodibility, equipment use, and competition from undesirable plants
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Using cable logging methods helps to overcome the equipment limitation and prevents the acceleration of erosion caused by road construction, use of skid trails, and disturbance of the forest floor by heavy machinery.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase productivity of the Wilkes and Wynott soils.
- Prescribed burning helps to reduce plant competition with hardwood species.

Urban Development

Suitability: Poorly suited
Management concerns: Depth to bedrock, slope, low strength, and corrosivity

Management measures and considerations:
- This map unit is severely limited for urban development because of the depth to bedrock and the slope. A site should be selected on better suited soils.
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Extensive blasting, land shaping, and grading are needed if roads are to be constructed on the contour.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: Wilkes—VIIe; Poindexter and Wynott—IVe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 7R in areas of the Wilkes and Wynott soils and 5R in areas of the Poindexter soil

WtB—Wynott-Enon complex, 2 to 8 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Ridges
Landform position: Convex summits
Shape of areas: Elongated or irregular
Size of areas: 5 to 50 acres

Composition

Wynott soil and similar soils: 59 percent
Enon soil and similar soils: 33 percent
Contrasting inclusions: 8 percent

Typical Profile

Wynott
Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 7 inches—light olive brown sandy loam
7 to 14 inches—light olive brown loam that has light yellowish brown mottles

Subsoil:
14 to 24 inches—yellowish brown clay that has yellow and black mottles
24 to 28 inches—dark yellowish brown sandy clay loam

Bedrock:
28 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—light olive brown loam

Subsoil:
8 to 23 inches—olive yellow clay that has red and brown mottles
23 to 35 inches—mottled red, brown, and yellow clay

Underlying material:
35 to 60 inches—mottled red, brown, and yellow sandy loam saprolite that has seams of clay

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Medium
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Random areas of Wilkes soils that have soft bedrock within a depth of 20 inches and are on shoulder slopes
- Random areas of Poindexter soils that have a loamy subsoil
- Somewhat poorly drained soils in depressions and in areas around the head of drainageways

Similar:
- Random areas of Mecklenburg soils that have a red subsoil
- Random areas of soils that have soft bedrock at a depth of 40 to 60 inches
- Wynott and Enon soils that have a surface layer of loam

Use and Management

Major Uses: Woodland, pasture and hayland, cropland, and urban development

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Well suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility

Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Wynott—windthrow hazard; Enon—no significant limitations
Management measures and considerations:
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—shrink-swell potential, restricted permeability, low strength, depth to bedrock, and corrosivity; Enon—shrink-swell potential, restricted permeability, low strength, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability and the depth to bedrock. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 7D in areas of the Wynott soil and 7A in areas of the Enon soil

WtC—Wynott-Enon complex, 8 to 15 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 100 acres

Composition

Wynott soil and similar soils: 55 percent
Enon soil and similar soils: 35 percent
Contrasting inclusions: 10 percent

Typical Profile

Wynott
Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 7 inches—light olive brown sandy loam
7 to 14 inches—light olive brown loam that has light yellowish brown mottles

Subsoil:
14 to 24 inches—yellowish brown clay that has yellow and black mottles
24 to 28 inches—dark yellowish brown sandy clay loam

Bedrock:
28 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—light olive brown loam

Subsoil:
8 to 23 inches—olive yellow clay that has red and brown mottles
23 to 35 inches—mottled red, brown, and yellow clay

Underlying material:
35 to 60 inches—mottled red, brown, and yellow sandy loam saprolite that has seams of clay

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Medium or rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Poorly drained soils in low depressional areas and in areas around the head of drainageways
- Wilkes soils that have soft bedrock within a depth of 20 inches

Similar:
- Random areas of Mecklenburg soils that have a red subsoil
- Random areas of soils that have soft bedrock at a depth of 40 to 60 inches
- Wynott and Enon soils that have a surface layer of loam

Use and Management

Major Uses: Woodland, urban development, pasture and hayland, and cropland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Wynott—windthrow hazard; Enon—no significant limitations
Management measures and considerations:
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Planting the appropriate species as recommended by a forester helps to achieve maximum productivity and ensure planting success.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—shrink-swell potential, restricted permeability, low strength, corrosivity, and depth to bedrock; Enon—shrink-swell potential, restricted permeability, low strength, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability and the depth to bedrock. The local Health Department should be contacted for guidance in developing sanitary facilities.

- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 7D in areas of the Wynott soil and 7A in areas of the Enon soil

WtD—Wynott-Enon complex, 15 to 25 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow to oblong
Size of areas: 10 to 100 acres

Composition

Wynott soil and similar soils: 45 percent
Enon soil and similar soils: 30 percent
Contrasting inclusions: 25 percent

Typical Profile

Wynott
Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsoil:
4 to 22 inches—yellowish brown clay
22 to 32 inches—brownish yellow clay that has red mottles

Bedrock:
32 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—yellowish brown loam

Subsoil:
8 to 14 inches—yellowish brown clay that has brownish yellow mottles
14 to 27 inches—dark yellowish brown clay
27 to 33 inches—yellowish brown clay loam

Underlying material:
33 to 60 inches—yellowish brown clay loam saprolite

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow

Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Wilkes soils that have soft bedrock at a depth of 20 to 40 inches
- Random areas of Poindexter soils that have a loamy subsoil
- The somewhat poorly drained Helena soils in depressions and along drainageways

Similar:
- Random areas of Mecklenburg soils that have a red subsoil
- Wynott and Enon soils that have a surface layer of sandy loam

Use and Management

Major Uses: Woodland and pasture and hayland

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Wynott—equipment use, erodibility, rooting depth, and soil fertility; Enon—equipment use, erodibility, and soil fertility
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Pasture—suited; hayland—poorly suited
Management concerns: Wynott—erodibility, rooting depth, equipment use, and soil fertility; Enon—erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- The slope limits the use of equipment in the steeper areas.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Wynott—erodibility, windthrow hazard, and equipment use; Enon—erodibility and equipment use

Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Using cable logging methods helps to overcome the equipment limitation and prevents the acceleration of erosion caused by road construction, use of skid trails, and disturbance of the forest floor by heavy machinery.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—shrink-swell potential, restricted permeability, depth to bedrock, low strength, corrosivity, and slope; Enon—shrink-swell potential, restricted permeability, low strength, corrosivity, and slope
Management measures and considerations:
- This map unit is severely limited for urban development because of the shrink-swell potential and the slope. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: IVe
Woodland ordination symbol: 7R, based on loblolly pine as the indicator species

WvB2—Wynott-Enon complex, 2 to 8 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Broad ridges
Landform position: Convex summits
Shape of areas: Elongated or irregular
Size of areas: 5 to 500 acres

Composition

Wynott soil and similar soils: 46 percent
Enon soil and similar soils: 42 percent
Contrasting inclusions: 12 percent

Typical Profile

Wynott
Surface layer:
0 to 8 inches—dark yellowish brown sandy clay loam

Subsoil:
8 to 14 inches—strong brown clay
14 to 22 inches—strong brown clay that has red mottles
22 to 35 inches—multicolored red, brown, yellow, and black clay loam

Bedrock:
35 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—dark yellowish brown sandy clay loam

Subsoil:
8 to 17 inches—strong brown clay
17 to 35 inches—strong brown clay loam

Underlying material:
35 to 46 inches—strong brown sandy loam saprolite
46 to 62 inches—sandy loam saprolite that is mottled in shades of brown, yellow, black, and dark greenish gray

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Medium
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Somewhat poorly drained soils in depressions and in areas around the head of drainageways
- Random areas of Wilkes soils that have soft bedrock within a depth of 20 inches and are on shoulders
- Random areas of Poindexter soils that have a loamy subsoil

Similar:
- Wynott and Enon soils that have a surface layer of clay loam
- Random areas of soils that have soft bedrock at a depth of 40 to 60 inches

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Well suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Wynott—erodibility, equipment use, seedling survival, and windthrow hazard; Enon—erodibility, equipment use, and seedling survival
Management measures and considerations:
- Establishing permanent plant cover on roads and landings after logging operations helps to reduce the hazard of erosion and prevent the siltation of streams.
- Restricting logging operations to periods when the soils are not wet helps to prevent rutting and possible root damage from compaction.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—shrink-swell potential, restricted permeability, low strength, depth to bedrock, and corrosivity; Enon—shrink-swell potential, restricted permeability, low strength, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

WvC2—Wynott-Enon complex, 8 to 15 percent slopes, moderately eroded

Setting

Landscape: Piedmont uplands, mainly in the northwestern part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Long and narrow
Size of areas: 5 to 300 acres

Composition

Wynott soil and similar soils: 42 percent
Enon soil and similar soils: 35 percent
Contrasting inclusions: 23 percent

Typical Profile

Wynott
Surface layer:
0 to 8 inches—dark yellowish brown sandy clay loam

Subsoil:
8 to 14 inches—strong brown clay
14 to 22 inches—strong brown clay that has red mottles
22 to 35 inches—multicolored red, brown, yellow, and black clay loam

Bedrock:
35 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—dark yellowish brown sandy clay loam

Subsoil:
8 to 17 inches—strong brown clay
17 to 35 inches—strong brown clay loam

Underlying material:
35 to 46 inches—strong brown sandy loam saprolite
46 to 62 inches—sandy loam saprolite that is mottled in shades of brown, yellow, black, and dark greenish gray

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Rapid
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Somewhat poorly drained soils in areas around the head of drainageways and along drainageways
- Random areas of soils that have a loamy subsoil

Similar:
- Wynott and Enon soils that have a surface layer of clay loam or loam
- Random areas of soils that have soft bedrock at a depth of 40 to 60 inches
- Random areas of Mecklenburg soils that have a red subsoil

Use and Management

Major Uses: Cropland, pasture and hayland, woodland, and urban development

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Poorly suited
Management concerns: Wynott—erodibility, rooting depth, and soil fertility; Enon—erodibility and soil fertility
Management measures and considerations:
- Resource management systems that include terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and rotations of soil-conserving crops help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Pasture—well suited; hayland—suited
Management concerns: Wynott—erodibility, rooting depth, equipment use, and soil fertility; Enon—erodibility, equipment use, and soil fertility
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.
- The slope may limit the use of equipment in the steeper areas during the harvest of hay crops.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Wynott—erodibility, equipment use, seedling survival, and windthrow hazard; Enon—erodibility, equipment use, and seedling survival

Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Constructing roads, fire lanes, and skid trails on the contour helps to overcome the slope.
- Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduces seedling mortality rates, and increases early seedling growth.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—shrink-swell potential, restricted permeability, depth to bedrock, low strength, and corrosivity; Enon—shrink-swell potential, restricted permeability, low strength, and corrosivity
Management measures and considerations:
- This map unit is severely limited for septic tank absorption fields because of the restricted permeability. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Reinforcing foundations or backfilling with coarse material helps to strengthen buildings and prevents damage caused by shrinking and swelling.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: IIIe
Woodland ordination symbol: 6C, based on loblolly pine as the indicator species

WyC—Wynott-Enon complex, 4 to 15 percent slopes, extremely bouldery

Setting

Landscape: Piedmont uplands
Landform: Narrow ridges
Landform position: Convex summits
Shape of areas: Elongated
Size of areas: 5 to 100 acres

Composition

Wynott soil and similar soils: 50 percent
Enon soil and similar soils: 42 percent
Contrasting inclusions: 8 percent

Typical Profile

Wynott
Surface layer:
0 to 7 inches—yellowish brown loam

Subsurface layer:
7 to 13 inches—light olive brown loam

Subsoil:
13 to 31 inches—yellowish brown clay
31 to 35 inches—light olive brown loam that has yellowish red mottles

Bedrock:
35 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—light olive brown loam

Subsurface layer:
8 to 14 inches—brownish yellow loam

Subsoil:
14 to 31 inches—reddish yellow clay

Underlying material:
31 to 62 inches—reddish yellow clay loam saprolite

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Very rapid
Stoniness: About 3 to 15 percent surface stones and boulders that average about 24 to 48 inches in diameter and 8 to 25 feet apart
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Random areas of rock outcrops
- Random areas of Wilkes soils that have soft bedrock within a depth of 20 inches
- Moderately well drained soils in depressions and in areas around the head of drainageways

Similar:
- Random areas of Poindexter soils that have a loamy subsoil
- Random areas of Wynott and Enon soils that have a surface layer of loam or silt loam

Use and Management

Major Uses: Woodland

Cropland

Major crops: None
Suitability: Poorly suited

Management concerns: Erodibility, soil fertility, and equipment use
Management measures and considerations:
- This map unit is severely limited for crop production because of large stones and boulders and the slope. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Erodibility, soil fertility, and equipment use
Management measures and considerations:
- This map unit is severely limited for the production of pasture and hay crops because of large stones and boulders and the slope. A site should be selected on better suited soils.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Wynott—erodibility, equipment use, windthrow hazard, and competition from undesirable plants; Enon—equipment use and seedling survival
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Logging roads and skid trails may not be feasible within this map unit and, if used, require special design and layout.
- Planting trees by machine and mechanical site preparation are not feasible. Tracked equipment should not be used, and sharp stones may cause damage to rubber-tired equipment.
- Prescribed burning helps to reduce plant competition with hardwood species.
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—restricted permeability, depth to bedrock, shrink-swell potential, low strength, slope, and corrosivity; Enon—restricted permeability, shrink-swell potential, low strength, slope, and corrosivity
Management measures and considerations:
- This map unit has severe limitations affecting septic tank absorption fields. The local Health Department should be contacted for guidance in developing sanitary facilities.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.
- Designing structures so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.

Interpretive Groups

Land capability classification: VIs
Woodland ordination symbol: 7X, based on loblolly pine as the indicator species

WyE—Wynott-Enon complex, 15 to 45 percent slopes, extremely bouldery

Setting

Landscape: Piedmont uplands, mainly in the western part of the county
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Shape of areas: Irregular
Size of areas: 5 to 75 acres

Composition

Wynott soil and similar soils: 50 percent
Enon soil and similar soils: 40 percent
Contrasting inclusions: 10 percent

Typical Profile

Wynott
Surface layer:
0 to 7 inches—yellowish brown loam

Subsurface layer:
7 to 13 inches—light olive brown loam

Subsoil:
13 to 31 inches—yellowish brown clay
31 to 35 inches—light olive brown loam that has red mottles

Bedrock:
35 to 60 inches—weathered, moderately fractured diabase

Enon
Surface layer:
0 to 8 inches—light olive brown loam

Subsurface layer:
8 to 14 inches—brownish yellow loam

Subsoil:
14 to 31 inches—reddish yellow clay

Underlying material:
31 to 62 inches—reddish yellow clay loam saprolite

Soil Properties and Qualities

Depth class: Wynott—moderately deep; Enon—very deep
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: High
Surface runoff: Very rapid
Stoniness: About 3 to 15 percent surface stones and boulders that average about 24 to 48 inches in diameter and 8 to 25 feet apart
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks

Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Enon—more than 60 inches

Inclusions

Contrasting:
- Random areas of rock outcrops
- Random areas of Wilkes soils that have bedrock within a depth of 20 inches

Similar:
- Random areas of Wynott and Enon soils that have a surface layer of loam or silt loam

Use and Management

Major Uses: Woodland

Cropland

Major crops: None
Suitability: Poorly suited
Management concerns: Erodibility, soil fertility, and equipment use
Management measures and considerations:
- This map unit is severely limited for crop production because of the slope and large boulders. A site should be selected on better suited soils.

Pasture and Hayland

Suitability: Poorly suited
Management concerns: Erodibility, soil fertility, and equipment use
Management measures and considerations:
- This map unit is severely limited for the production of pasture and hay crops because of the slope and large boulders. A site should be selected on better suited soils.

Woodland

Suitability: Suited
Productivity: Moderately high
Management concerns: Wynott—erodibility, equipment use, windthrow hazard, and seedling survival; Enon—erodibility, equipment use, and seedling survival
Management measures and considerations:
- Installing broad-based dips, water bars, and culverts helps to stabilize logging roads, skid trails, and landings.
- Reseeding all disturbed areas with adapted grasses and legumes helps to prevent erosion.
- Logging roads and skid trails may not be feasible within this map unit, and, if used, require special design and layout.
- Planting trees by machine and mechanical site preparation are not feasible. Tracked equipment should not be used, and sharp stones may cause damage to rubber-tired equipment.

Urban Development

Suitability: Poorly suited
Management concerns: Wynott—restricted permeability, depth to bedrock, shrink-swell potential, low strength, corrosivity, and slope; Enon—restricted permeability, shrink-swell potential, low strength, corrosivity, and slope
Management measures and considerations:
- This map unit has severe limitations affecting urban development. A site should be selected on better suited soils.

Interpretive Groups

Land capability classification: VIIs
Woodland ordination symbol: Based on loblolly pine as the indicator species, 7R in areas of the Wynott soil and 7X in areas of the Enon soil

WzB—Wynott-Wilkes-Poindexter complex, 2 to 8 percent slopes

Setting

Landscape: Piedmont uplands, mainly in the northern part of the county
Landform: Narrow ridges
Landform position: Convex summits
Shape of areas: Irregular
Size of areas: 5 to 80 acres

Composition

Wynott soil and similar soils: 43 percent
Wilkes soil and similar soils: 35 percent
Poindexter soil and similar soils: 15 percent
Contrasting inclusions: 7 percent

Typical Profile

Wynott
Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 7 inches—light olive brown sandy loam
7 to 14 inches—light olive brown loam that has light yellowish brown mottles

Subsoil:
14 to 24 inches—yellowish brown clay that has yellow and black mottles
24 to 28 inches—dark yellowish brown sandy clay loam

Bedrock:
28 to 60 inches—weathered, moderately fractured diabase

Wilkes
Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 12 inches—strong brown sandy clay loam

Underlying material:
12 to 17 inches—sandy loam that is mottled in shades of black, white, strong brown, and grayish green

Bedrock:
17 to 45 inches—weathered, moderately fractured diabase
45 inches—unweathered, slightly fractured diabase

Poindexter
Surface layer:
0 to 4 inches—light yellowish brown loam

Subsurface layer:
4 to 12 inches—light yellowish brown fine sandy loam

Subsoil:
12 to 18 inches—yellow sandy clay loam
18 to 23 inches—mottled yellowish brown, red, and white sandy clay loam

Bedrock:
23 to 40 inches—weathered, moderately fractured diabase

Soil Properties and Qualities

Depth class: Wynott and Poindexter—moderately deep; Wilkes—shallow
Drainage class: Well drained
Permeability: Slow
Depth to high water table: More than 6.0 feet
Flooding: None
Shrink-swell potential: Wynott—high; Wilkes—moderate; Poindexter—low
Surface runoff: Wynott—very high; Wilkes and Poindexter—high
Parent material: Residuum weathered from mafic high-grade metamorphic or igneous rocks
Depth to bedrock: Wynott—20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock; Wilkes—10 to 20 inches to soft bedrock and more than 20 inches to hard bedrock; Poindexter—20 to 40 inches to soft bedrock and 40 to 60 inches to hard bedrock

Inclusions

Contrasting:
- Random areas of Enon soils that have bedrock at a depth of more than 60 inches
- Moderately well drained soils in concave areas at the head of drainageways and along drainageways

Similar:
- Wilkes, Poindexter, and Wynott soils that have a surface layer of sandy loam or clay loam

Use and Management

Major Uses: Woodland, pasture and hayland, and cropland

Cropland

Major crops: Corn, soybeans, small grain, and tobacco
Suitability: Suited
Management concerns: Erodibility, soil fertility, and rooting depth
Management measures and considerations:
- Resource management systems that include terraces and diversions, stripcropping, contour tillage, no-till farming, and crop residue management help to reduce the hazard of erosion, control surface runoff, and maximize rainfall infiltration.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes crop productivity.
- Because of the shallow rooting depth, managing this map unit for economical crop production is difficult.
- Incorporating plant residue into the soils helps to improve the water-holding capacity, and planting shallow-rooted crops helps to overcome the moderately deep rooting depth.

Pasture and Hayland

Suitability: Suited
Management concerns: Erodibility, soil fertility, and rooting depth
Management measures and considerations:
- Preparing seedbeds on the contour or across the slope helps to reduce the hazard of erosion and increase germination.
- Because of the shallow rooting depth, managing areas of the Wilkes soil for the economical production of pasture and hay crops is difficult.
- Applying lime and fertilizer according to recommendations based on soil tests increases the availability of plant nutrients and maximizes productivity when establishing, maintaining, or renovating hayland and pasture.
- Rotational grazing and a well planned clipping and harvesting schedule help to maintain pastures and increase productivity.

Woodland

Suitability: Well suited
Productivity: Moderately high
Management concerns: Wynott and Wilkes—windthrow hazard and competition from undesirable plants; Poindexter—competition from undesirable plants
Management measures and considerations:
- Periodically harvesting windthrown trees that result from high winds and a limited rooting depth helps to increase soil productivity.
- Site preparation practices, such as chopping, prescribed burning, and applications of herbicide, help to reduce competition from unwanted plants.

Urban Development

Suitability: Poorly suited
Management concerns: Depth to bedrock, low strength, and corrosivity
Management measures and considerations:
- This map unit is severely limited for urban development because of the depth to bedrock. A site should be selected on better suited soils.
- The local Health Department should be contacted for guidance in developing sanitary facilities.
- Extensive blasting, land shaping, and grading are needed if roads are to be constructed on the contour.
- Incorporating sand and gravel into the roadbed, compacting the roadbed, and designing roads so that they conform to the natural slope help to improve soil strength.
- Using corrosion-resistant materials helps to reduce the risk of damage to uncoated steel and concrete.

Interpretive Groups

Land capability classification: Wynott and Poindexter—IIe; Wilkes—IVe
Woodland ordination symbol: Based on loblolly pine as the indicator species, 7D in areas of the Wynott and Wilkes soils and 6A in areas of the Poindexter soil

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Generally, the soils in Randolph County that are well suited to crops are also well suited to urban uses. The data concerning specific soils in the county can be used in planning future land use patterns. The potential for farming should be considered relative to any soil limitations and the potential for nonfarm development.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Barton Roberson, district conservationist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils are identified, the system of land capability classification used by the Natural Resources Conservation Service is explained, the estimated yields of the main crops and hay and pasture plants are listed for each soil, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units” and in the tables. Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Federal and State regulations require that any area designated as wetlands cannot be altered without prior approval. Contact the local office of the Natural Resources Conservation Service for identification of hydric soils and potential wetlands.

In 1993, more than 32,000 acres in Randolph County was used for crops *(6)*. Nearly 13,500 acres was used as permanent pasture. Because of soil suitability and a favorable climate, many field crops that are not commonly grown in Randolph County can also be produced.

Corn, tobacco, and soybeans are the dominant row crops. Grain sorghum, cotton, and similar crops can also be grown profitably if economic conditions are favorable.

Wheat is the most common close-growing crop. Rye, barley, and oats are also suitable. Grass seed can be produced from fescue and orchardgrass.

Specialty crops include vegetables, small fruits, tree fruits, flowers, and many nursery plants. Some areas are used for melons, strawberries, sweet corn, tomatoes, peppers, or other vegetables or small fruits.

Deep and very deep soils that are characterized by good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. These soils include Georgeville and Cecil soils that have slopes of less than 8 percent. They make up about 73,000 acres in the survey area. Crops generally can be planted and harvested earlier on these soils than on other soils in the survey area.

Most of the well drained soils in the survey area are suitable for orchard crops and nursery plants. Soils in low areas where frost is frequent and air drainage is poor generally are poorly suited to early vegetables, small fruits, and orchard crops.

The latest information about specialty crops can be obtained at the local office of the Cooperative Extension Service or the Natural Resources Conservation Service.

The nearly level and gently sloping soils in the survey area generally are well suited to row crops. Most of the row crops are grown on uplands because the acreage of bottom land and stream terraces is limited. The broad ridges and the more nearly level areas are suitable for grain crops. Deep, well drained soils, such as Appling and Cecil soils, are suited to tobacco and alfalfa. During years of normal rainfall, Georgeville and Helena soils produce high yields of tobacco. The more sloping Rion and Pacolet soils are commonly used for hay and pasture.

Some areas that are idle, wooded, or pastured have good potential for use as cropland. Food production could be increased considerably by applying the latest technology to all of the cropland in the survey area. The information in this soil survey can facilitate the application of such technology.

Cropland

Management considerations on cropland in the county include controlling erosion, installing a drainage system, improving soil fertility, applying a system of chemical weed control, and improving tilth.

Erosion control.—Water erosion is a major concern on most of the soils used for cropland in Randolph County. It is a hazard on soils that have slopes of more than 2 percent. Mecklenburg and Georgeville soils are examples. As the slope increases, the hazard of erosion and the difficulty in controlling erosion also increase.

Loss of the surface layer through erosion is damaging. Soil productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Cecil and Georgeville soils, and on soils that have a layer in or below the subsoil that limits the depth of the root zone, such as Badin and Tarrus soils. Erosion on farmland results in the sedimentation of streams. Controlling erosion minimizes the pollution of water by runoff carrying plant nutrients, soil particles, and plant residue. It improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping areas of clayey soils, preparing a good seedbed is difficult because much or all of the original friable surface layer has been lost through erosion. This degree of erosion is common in areas of Cecil and Georgeville soils.

Erosion-control practices provide a protective surface cover, reduce runoff, and increase the rate of water infiltration. A cropping system that keeps a vegetative cover on the soil for extended periods helps to minimize soil loss and maintain the productive capacity of the soil. In sloping areas, including forage crops of grasses and legumes in the cropping system helps to control erosion. The forage crops also add nitrogen to the soil and improve tilth.

Minimizing tillage and leaving crop residue on the surface increase the rate of water infiltration, reduce runoff, and help to control erosion. These practices can be effective on most of the soils in the survey area. In the more sloping areas that are used for corn or are double cropped with soybeans, no-till farming is effective in controlling erosion. No-till farming is effective on most of the soils in the survey area but is less successful on soils that have a clayey surface layer, such as the severely eroded Mecklenburg and Georgeville soils.

Terraces and diversions shorten the length of slopes and thus minimize erosion caused by runoff. They are most effective on deep, well drained soils that have regular slopes. Vance and Appling soils are examples. These measures are less effective on soils that have irregular slopes because these soils would have bedrock within a depth of 40 inches, would be excessively wet in terrace channels, or would have a clayey subsoil exposed in the terrace channels.

Contour farming and contour stripcropping help to control erosion on many of the soils in the survey area. They are best suited to soils that have smooth, uniform slopes, including most areas of Georgeville and Cecil soils.

Information about erosion-control measures for each kind of soil is available at the local office of the Natural Resources Conservation Service.

Drainage.—Excessive wetness is a management concern on about 7 percent of the cropland in Randolph County. Some soils are so wet that production of the crops commonly grown in the survey area is difficult unless a drainage system is installed. Chewacla and Wehadkee soils and other somewhat poorly drained or poorly drained soils are so wet that crops are damaged during most years unless a drainage system is installed. These soils make up about 8,500 acres in the survey area.

Small areas of wetter soils along drainageways are commonly included in mapping with the moderately well drained Callison and Lignum soils. A drainage system generally is not installed in these included soils. Ditches are used to improve drainage in some areas of these soils.

Managing drainage in conformance with regulations concerning wetlands may require special permits and extra planning. The local office of the Natural Resources Conservation Service should be contacted for identification of hydric soils and potential wetlands.

Soils along the river bottoms in Randolph County are frequently flooded for brief periods, generally between December and June. Flash flooding as a result of intensive rainfall can occur on the upper reaches of stream bottoms at any time of the year.

Soil fertility.—The soils in Randolph County generally are low in natural fertility and are naturally acid. Additions of lime and fertilizer are needed for the production of most kinds of crops.

Liming requirements are a major concern on cropland. The acidity level in the soil affects the availability of many nutrients to plants and the activity of beneficial bacteria. Lime neutralizes exchangeable aluminum in the soil and thus counteracts the adverse effects of high levels of aluminum on many crops. Liming adds calcium (from calcitic lime) or calcium and magnesium (from dolomitic lime) to the soil.

A soil test is a guide to what amount and kind of lime should be used. The desired pH levels may differ, depending on the soil properties and the crop to be grown.

Nitrogen fertilizer is required for most crops. It is generally not required, however, for peanuts and clover, in some rotations of soybeans, and for alfalfa that is established. A reliable soil test is not available for predicting nitrogen requirements. Appropriate rates of nitrogen application are described in the section “Yields per Acre.”

Soil tests can indicate the need for phosphorus and potassium fertilizer. Phosphorus and potassium tend to build up in the soil.

Chemical weed control.—The use of herbicides for weed control is a common practice on the cropland in Randolph County. It decreases the need for tillage and is an integral part of modern farming. Selected soil properties, such as organic matter content and texture of the surface layer, affect the rate of herbicide application. Estimates of both of these properties were determined for the soils in this survey area. Table 16 shows a general range of organic matter content in the surface layer of the soils. The texture of the surface layer is shown in the USDA texture column in table 15.

In some areas the organic matter content projected for the different soils is outside the range shown in the table. The content can be higher in soils that have received large amounts of animal or manmade waste. Soils that have recently been brought into cultivation may have a higher content of organic matter in the surface layer than similar soils that have been cultivated for a long time. Conservation tillage can increase the content of organic matter in the surface layer. A lower content of organic matter is common where the surface layer has been partly or completely removed by erosion or land smoothing. Current soil tests should be used for specific organic matter determinations.

Tilth.—Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous.

Some of the soils in the survey area that are used for crops have a light-colored surface layer of silt loam and a low content of organic matter. Generally, the structure of these soils is weak. Periods of heavy rainfall result in the formation of a crust on the surface. The crust is hard when dry and nearly impervious to water. It reduces the rate of water infiltration and increases the runoff rate. Regular additions of crop residue, manure, and other organic material can improve soil structure and prevent the formation of a crust.

Because of crusting during winter and spring, fall plowing is generally not recommended for soils that have a light-colored surface layer of silt loam. Many of the soils that are plowed in fall are almost as dense and hard at planting time as they were before they were plowed. More than 90 percent of the cropland in the survey area consists of sloping soils that are subject to erosion if they are plowed in fall.

Severely eroded, clayey soils, such as Badin and Tarrus soils, become cloddy if they are plowed outside a narrow range in moisture content. Fall plowing on these soils generally results in better tilth in spring.

Some soils in the survey area have poor tilth because of gravel in the surface layer. These soils are in small, isolated areas along river bottoms and terraces. The content and size of the pebbles affect the use of tillage implements.

Stones and boulders are common in many of the colluvial soils in the survey area. In some places the rock fragments prevent tillage. In other places they can be removed.

Pasture and Hayland

In 1994, Randolph County had more than 39,600 beef and dairy cattle *(6)*. Most of the pasture and hayland supports a mixture of grasses and legumes. Most of the hay is grown in rotation with pasture. The harvested hay commonly is rolled into large, round bales or is used as grass silage.

Selection of forage species.—A successful livestock enterprise depends on a forage program that provides large quantities of good-quality feed. In most areas of hayland and pasture in Randolph County, renovation, brush control, and measures that prevent overgrazing are needed.

The soils in the survey area vary widely in their ability to produce grasses and legumes because of differences in such properties as depth to bedrock or to other limiting layers, internal drainage, and available water capacity. The forage species selected for planting should be appropriate for the soil.

The nearly level and gently sloping, deep and very deep, well drained soils should be planted to the highest producing crops, such as corn silage, alfalfa, or a mixture of alfalfa and orchardgrass or alfalfa and timothy. Sod-forming grasses, such as tall fescue and orchardgrass, minimize erosion in the steeper areas. Alfalfa should be seeded with cool-season grasses in areas where the soil is at least 2 feet deep and is well drained. The more poorly drained soils and the soils that are less than 2 feet deep are suited to clover-grass mixtures or to pure stands of clover or grasses. Legumes can be established through renovation in areas that support sod-forming grasses.

The intended use should be considered when forage species are selected. Selected species should provide maximum quality and versatility in the forage program. Legumes generally produce higher quality feed than grasses. They should be grown to the maximum extent possible. The taller legumes, such as alfalfa and red clover, are more versatile than legumes that are used primarily for grazing, such as white clover. Orchardgrass, timothy, and tall fescue are best suited to use as hay and silage.

Tall fescue is an important cool-season grass. It is suited to a wide range of soil conditions and is grown for both pasture and hay. The growth that occurs from August through November commonly accumulates in the field and is used for grazing in late fall and in winter. For maximum production, nitrogen fertilizer should be applied during the period when the grass is accumulating. The rate of application should be based on the desired level of production.

Warm-season grasses that are planted during the period from early April through late May help to supplement cool-season grasses, such as tall fescue. They grow well during warm periods, especially from mid-June through September, when the growth of cool-season grasses is slow. Examples of warm-season grasses are switchgrass, big bluestem, indiangrass, and Caucasian bluestem.

Maintenance of pasture and hayland.—Renovation can increase forage yields in areas that have a good stand of grass. It includes partially destroying the sod, applying lime and fertilizer, and seeding desirable forage species. Adding legumes to the stand of grass provides high-quality feed. Legumes increase summer production and transfer nitrogen from the air into the soil. Under growing conditions, alfalfa can fix 200 to 300 pounds of nitrogen per acre per year, red clover can fix 100 to 200 pounds, and ladino clover can fix 100 to 150 pounds. An acre of annual forage legumes, such as vetch, can fix 75 to 100 pounds of nitrogen per year.

Additional information about managing pasture and hayland can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

A high level of management includes maintaining proper soil reaction and fertility levels as indicated by standard soil tests. The application rate of nitrogen for corn on soils that have a yield potential of 125 to 150 bushels per acre should be 140 to 160 pounds per acre. If the yield potential for corn is 100 bushels per acre or less, a rate of 100 to 120 pounds of nitrogen per acre should be used. The application of nitrogen in excess of that required for potential yields generally is not recommended. The excess nitrogen fertilizer that is not utilized by the crop is an unnecessary expense and causes a hazard of water pollution. If corn or cotton is grown after the harvest of soybeans or peanuts, nitrogen rates can be reduced by about 20 to 30 pounds per acre. Because nitrogen can be readily leached from sandy soils, applications may be needed on these soils more than once during the growing season.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops *(14)*. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section “Detailed Soil Map Units” and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 116,519 acres in the survey area, or nearly 23 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, but most are in the southern part, mainly in general soil map units 1, 5, and 6, which are described under the heading “General Soil Map Units.” About 80,000 acres of this prime farmland is used for crops and pasture.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other

uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures used to overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Woodland Management and Productivity

Albert Coffey, forester, Natural Resources Conservation Service, helped prepare this section.

Owners of woodland in Randolph County have many objectives. These objectives include producing timber; conserving wildlife, soil, and water; preserving esthetic values; and providing opportunities for recreational activities, such as commercial hunting *(13)*. Public demand for clean water and recreational areas creates pressures and opportunities for owners of woodland.

For purposes of forest inventory, the predominant forest types identified in Randolph County are as described in the following paragraphs *(10)*.

Loblolly-shortleaf. This forest type covers 32,377 acres. It is predominantly loblolly pine, shortleaf pine, or other kinds of southern yellow pine (excluding longleaf pine and slash pine) or a combination of these species. Commonly included trees are oak, hickory, and gum.

Oak-pine. This forest type covers 36,146 acres. It is predominantly hardwoods, usually upland oaks. Pine species make up 25 to 50 percent of the stand. Commonly included trees are gum, hickory, and yellow-poplar.

Oak-hickory. This forest type covers 238,880 acres. It is predominantly upland oaks or hickory, or both. Commonly included trees are yellow-poplar, elm, maple, and black walnut.

Oak-gum-cypress. This forest type covers 4,254 acres. It is bottom-land forest consisting predominantly of tupelo, blackgum, sweetgum, oaks, southern cypress, or a combination of these species. Commonly included trees are cottonwood, willow, ash, elm, hackberry, and maple *(10)*.

The landowner interested in timber production is faced with the challenge of producing greater yields from smaller areas. Meeting this challenge requires intensive management and silvicultural practices. Many modern silvicultural techniques resemble those long practiced in agriculture. They include establishing, weeding, and thinning a desirable young stand; propagating the more productive species and genetic varieties; providing short rotations and complete fiber utilization; controlling insects, diseases, and weeds; and improving tree growth by applications of fertilizer and the installation of a drainage system. Even though timber crops require decades to grow, the goal of intensive management is similar to the goal of intensive agriculture. This goal is to produce the greatest yield of the most valuable crop as quickly as possible.

Commercial forests cover about 2,750 acres, or about .005 percent of the land area of Randolph County *(10)*. Commercial forest is land that is producing or is capable of producing crops of industrial wood and that has not been withdrawn from timber production. Loblolly pine is the most important timber species in the county because it grows fast, is adapted to the soil and climate, brings the highest average sale value per acre, and is easy to establish and manage.

One of the first steps in planning intensive woodland management is to determine the potential productivity of the soil for several alternative tree species. The most

productive and valued trees are then selected for each soil type. Site and yield information enables a forest manager to estimate future wood supplies. These estimates are the basis of realistic decisions concerning expenses and profits associated with intensive woodland management, land acquisition, or industrial investments.

The potential productivity of woodland depends on physiography, soil properties, climate, and the effects of past management. Specific soil properties and site characteristics, including soil depth, texture, structure, and depth to the water table, affect forest productivity primarily by influencing available water capacity, aeration, and root development. The net effects of the interaction of these soil properties and site characteristics determine the potential site productivity.

Other site factors are also important. The gradient and length of slopes affect water movement and availability. In mountainous areas, elevation and aspect affect the amount of sunlight a site receives and the rate of evaporation. Sites on south-facing slopes are warmer and drier than those on north-facing slopes. The best sites are generally on north- and east-facing slopes in the lower areas, in sheltered coves, and in gently sloping concave areas. The amount of rainfall and length of growing season influence site productivity.

A knowledge of soils helps to provide a basic understanding of the distribution and growth of tree species on the landscape. For example, yellow-poplar grows well on deep or very deep, moist soils and scarlet oak or pine is common in areas where the rooting depth is restricted or the moisture supply is limited.

Availability of water and nutrients and landscape position largely determine which tree species grow on a particular soil. For example, sugar maple and basswood grow on soils that have the highest fertility levels and a high moisture content. Beech grows on soils that have a high moisture content and intermediate fertility levels. Chestnut oak and red maple grow on soils that have low fertility levels and a low moisture content. Scarlet oak and pine grow on soils that have very low fertility levels and a very low moisture content.

Soil serves as a reservoir for moisture, provides an anchor for roots, and supplies most of the available nutrients. These three qualities are directly or indirectly affected by organic matter content, reaction, fertility, drainage, texture, structure, depth, and landscape position. Elevation and aspect are of particular importance in mountainous areas.

The ability of a soil to serve as a reservoir for moisture, as measured by the available water capacity, is primarily influenced by texture, organic matter content, rooting depth, and content of rock fragments. Because of the fairly even and abundant summer rainfall in the survey area, available water capacity is a limitation affecting tree growth only on shallow soils, such as Goldston soils.

In the survey area all of the soils, except for the shallowest, provide an adequate anchor for tree roots. The susceptibility to windthrow, or the uprooting of trees by the wind, is not a major management concern on most soils.

The available supply of nutrients for tree growth is affected by several soil properties. Mineral horizons in the soil are important. Mineralization of humus releases nitrogen and other nutrients to plants. Calcium, magnesium, and potassium are held within the humus. Very small amounts of these nutrients are made available by the weathering of clay and silt particles. Most of the upland soils have been leached and contain only small amounts of nutrients below the surface layer. Soils that have a thin surface layer must be carefully managed during site preparation so that the surface layer is not removed or degraded. Examples are Georgeville and Cecil soils.

The living plant community is part of the nutrient reservoir. The decomposition of leaves, stems, and other organic material recycles the nutrients that have accumulated in the forest ecosystem. Fire, excessive trampling by livestock, and erosion can result

in the loss of these nutrients. Woodland management should include prevention of wildfires and protection from overgrazing.

Aspect and landscape position influence the amount of available sunlight, air drainage, soil temperature, and moisture retention. North- and east-facing slopes, or cool slopes, are better suited to tree growth than south- and west-facing slopes, or warm slopes. The average height that trees attain in 50 years can be as much as 10 feet higher on cool slopes than on warm slopes. Most of the soils on cool slopes have an A horizon that is thicker and has more humus and clay than that of the soils on warm slopes.

Soils on the lower slopes may receive additional water because of internal waterflow. In soils on the very steep uplands, much of the water movement during periods of saturation occurs as lateral flow within the subsoil.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. Table 8 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate*, and *severe* are used to indicate the degree of the major soil limitations to be considered in management.

Table 8 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare per year. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of the slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a high content of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, the use of wheeled equipment becomes more difficult.

On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of the naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *windthrow hazard* indicate the likelihood that trees will be uprooted by the wind. A restricted rooting depth is the main reason for windthrow. The rooting depth can be restricted by a high water table, by a fragipan, by bedrock, or by a combination of such factors as soil wetness, texture, structure, and depth. The risk is *slight* if strong winds break trees but do not uproot them; *moderate* if strong winds blow a few trees over and break many trees; and *severe* if moderate or strong winds commonly blow trees over. Ratings of moderate or severe indicate that care is needed in thinning or that the stand should not be thinned at all. Special equipment may be needed to prevent damage to shallow root systems in partial cutting operations. A plan for the periodic removal of windthrown trees and the maintenance of a road and trail system may be needed.

The *potential productivity* of *common trees* on a soil is expressed as a *site index* and a *volume* number. The predominant common trees are listed in table 8 in the order of their observed occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

For soils that are commonly used for timber production, the yield is predicted in cubic feet per acre per year. It is predicted at the point where mean annual increment culminates. The estimates of the productivity of the soils in this survey are based mainly on loblolly pine, shortleaf pine, and upland oaks *(5, 7)*. Productivity is also based on site index data from yellow-poplar *(3)*.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years (50 years in this survey). This index applies to fully stocked, even-aged, unmanaged stands. Productivity of a site can be improved through management practices, such as

bedding, ditching, managing water, applying fertilizer, and planting genetically improved species.

The *volume* is the yield likely to be produced by the most important trees, expressed in cubic feet per acre per year.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

The soils of the survey area are rated in table 9 according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the period of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat. The ratings in table 10 are intended to be used as a guide and are not site specific. Onsite investigation is needed for individual management plans.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, and pokeberry.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness.

Examples of these plants are oak, yellow-poplar, black cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are autumn-olive and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, cattail, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail rabbit, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, white-tailed deer, and black bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock or a very firm, dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the high water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established. Soil tests are essential to determine liming and fertilizer needs. Help in making soil tests or in deciding what soil additive, if any, should be used can be obtained from the office of the Randolph Soil and Water Conservation District or the local office of the Cooperative Extension Service.

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally

are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. The animal waste lagoons commonly used in farming operations are not considered in the ratings. They are generally deeper than the lagoons referred to in the table and rely on anaerobic bacteria to decompose waste materials.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope or bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the high water table is more than 3 feet. Soils rated *fair* have more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the high water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a high water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale, siltstone, and weathered granite saprolite, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a high water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a high water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are naturally fertile or respond well to fertilizer and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area. Ponds that are less than about 2 acres in size are not shown on the maps because of the scale of mapping.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, mica, or salts or sodium. Depth to a high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to ponding, slope, susceptibility to flooding, subsidence of organic layers, and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root

zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Drainage may be a major management consideration in some areas. Management of drainage in conformance with regulations concerning wetlands may require special permits and extra planning. The local office of the Natural Resources Conservation Service should be contacted for identification of hydric soils and potential wetlands.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a high water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the availability of suitable irrigation water, the depth of the root zone, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of soil blowing, a low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed *(12)*. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages, by weight, of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, by volume, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil

that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest.

Rock fragments 3 to 10 inches in diameter and larger than 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates

indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time. It is the difference between the amount of soil water at field moisture capacity and the amount at wilting point.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, 6 to 9 percent; and *very high*, more than 9 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility to soil blowing. The soils assigned to group 1 are the most susceptible to soil blowing, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to soil blowing because of coarse fragments on the surface or because of surface wetness.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep or very deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep to very deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as none, rare, occasional, or frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of

flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). *Common* is used when occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in table 17 are the depth to the high water table; the kind of water table—that is, *perched* or *apparent;* and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the high water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. “More than 6.0” indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(15)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid climate, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizon development, plus *udult*, the suborder of the Ultisols that occurs in humid climates).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, semiactive, thermic Typic Hapludults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the underlying material within a series.

The orders in this survey area are Entisol, Inceptisol, Ultisol, and Alfisol.

Entisols have been little affected by soil-forming processes. A thin A horizon is the only distinct pedogenic horizon in these soils. Fluvaquents and Udorthents are examples of Entisols.

Fluvaquents are very deep, poorly drained soils that have a thin A horizon. Typic Fluvaquents are fine-silty and have mixed mineralogy. They include Wehadkee soils in wet, swampy areas on flood plains. They are not extensive in the survey area.

Udorthents are deep or very deep, well drained soils that have a very thin A horizon. The Udorthents in cut and fill areas that are associated with urban land were not classified below the category of great group. Typic Udorthents are loamy-skeletal and have mixed mineralogy.

Inceptisols generally have a very low degree of base saturation. Inceptisols in this survey area have a cambic horizon. Dystrochrepts and Haplumbrepts are examples of Inceptisols.

Fluvaquentic Dystrochrepts and Fluventic Dystrochrepts are coarse-loamy or loamy-skeletal and have mixed mineralogy. They include Chewacla and Riverview soils on flood plains.

Ultisols and Alfisols have an argillic horizon that exhibits clay translocation. Ultisols are leached to a greater degree than Alfisols. Hapludults, Kanhapludults, and Kandiudults are examples of Ultisols. Hapludalfs are an example of Alfisols.

Hapludults and Kanhapludults are moderately deep to very deep, well drained soils that have a thin A horizon and a thin or moderately thick subsoil. They commonly have a yellowish brown subsoil. Typic Hapludults and Typic Kanhapludults are fine-loamy or clayey and have mixed or siliceous mineralogy. They include Rion soils on uplands and stream terraces.

Kandiudults are very deep, well drained soils that have a thick A horizon and a thick subsoil. They commonly have a brown or dark yellowish brown subsoil. Typic Kandiudults are fine-loamy or clayey and have kaolinitic mineralogy. They include Appling soils on summits and side slopes.

Hapludalfs are very deep, well drained soils that have a moderately thick A horizon and a thick subsoil. They commonly have a brown or yellowish brown subsoil. Ultic Hapludalfs are fine-loamy or clayey and have mixed mineralogy. They include Enon soils, which are on uplands and formed in residuum derived from diorite, gabbro, and diabase.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The location of the typical pedon is described, and coordinates generally are identified by longitude and latitude. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” *(17)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(15)* and in “Keys to Soil Taxonomy” *(16)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section “Detailed Soil Map Units.”

Appling Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Broad ridges and hillslopes
Landform position: Convex summits and side slopes

Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Slope range: 2 to 10 percent
Classification: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Appling sandy loam, 2 to 6 percent slopes; about 0.75 mile west of Liberty on Secondary Road 2261, about 1 mile south on Secondary Road 2438, about 75 feet east of the road, in a field; Liberty USGS topographic quadrangle; lat. 35 degrees 50 minutes 11 seconds N. and long. 79 degrees 35 minutes 17 seconds W.

Ap—0 to 6 inches; light yellowish brown (2.5Y 6/4) sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.
Bt1—6 to 18 inches; strong brown (7.5YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.
Bt2—18 to 36 inches; strong brown (7.5YR 5/8) clay; common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; few fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.
BC—36 to 52 inches; strong brown (7.5YR 5/8) sandy clay loam; common medium distinct yellowish brown (10YR 5/6), yellowish red (5YR 5/6), and red (2.5YR 4/8) mottles and streaks; weak fine subangular blocky structure; firm; slightly sticky, slightly plastic; few pockets of clay; strongly acid; gradual wavy boundary.
C—52 to 63 inches; mottled strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), yellowish red (5YR 4/6), and red (2.5YR 4/6) sandy loam saprolite; massive; friable; pockets of sandy clay loam; very strongly acid.

Range in Characteristics

Thickness of solum: 40 to 60 inches
Content and size of rock fragments: 0 to 35 percent in the A and E horizons and 0 to 10 inches in the B horizon; gravel
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

A or Ap horizon:
Hue—5YR to 2.5Y
Value—3 to 6
Chroma—2 to 6
Texture (fine-earth fraction)—sandy loam

E horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture (fine-earth fraction)—sandy loam, fine sandy loam, or coarse sandy loam

BE horizon (if it occurs):
Hue—5YR to 10YR
Value—5 or 6
Chroma—3 to 8
Texture—sandy clay loam or sandy loam

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6

Chroma—4 to 8
Mottles—shades of red, yellow, or brown
Texture—sandy clay, clay loam, or clay that has thin layers of sandy loam

BC horizon:
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—4 to 8
Mottles—shades of red, yellow, or brown
Texture—clay loam, sandy clay loam, or sandy clay

C horizon:
Color—mottled in shades of red, yellow, brown, white, or gray
Texture—sandy loam saprolite

Badin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Ridges
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from argillite and other fine-grained metamorphic rocks in the Carolina Slate Belt
Slope range: 2 to 45 percent
Classification: Fine, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Badin silty clay loam in an area of Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded; 2.3 miles south of the intersection of N.C. Highway 49 and Secondary Road 1181, about 100 feet west of the intersection of Secondary Road 1181 and a farm road, 75 feet north of the farm road, in a field; Handy USGS topographic quadrangle; lat. 35 degrees 34 minutes 19 seconds N. and long. 80 degrees 00 minutes 49 seconds W.

Ap—0 to 8 inches; strong brown (7.5YR 4/6) silty clay loam; weak fine subangular blocky structure; friable; few fine roots; very strongly acid; clear smooth boundary.
Bt1—8 to 12 inches; yellowish red (5YR 5/6) silty clay loam; weak fine subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt2—12 to 27 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
BC—27 to 37 inches; red (2.5YR 4/8) silty clay loam; weak fine subangular blocky structure; friable; few fine faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
Cr—37 to 60 inches; yellowish red (5YR 5/8), strong brown (7.5YR 5/8), yellow (10YR 6/8), and red (2.5YR 5/8) weathered, highly fractured argillite; few seams of silt loam in cracks.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Content and size of rock fragments: 0 to 40 percent throughout the profile; gravel and channers

Depth to bedrock: 20 to 40 inches to soft bedrock (fig. 12); 40 to more than 60 inches to hard bedrock

Reaction: Strongly acid to extremely acid, except where surface layers have been limed

A or Ap horizon:

Hue—5YR to 2.5Y
Value—4 or 5
Chroma—2 to 8
Texture (fine-earth fraction)—silty clay loam

E horizon (if it occurs):

Hue—7.5YR to 2.5Y
Value—5 to 7

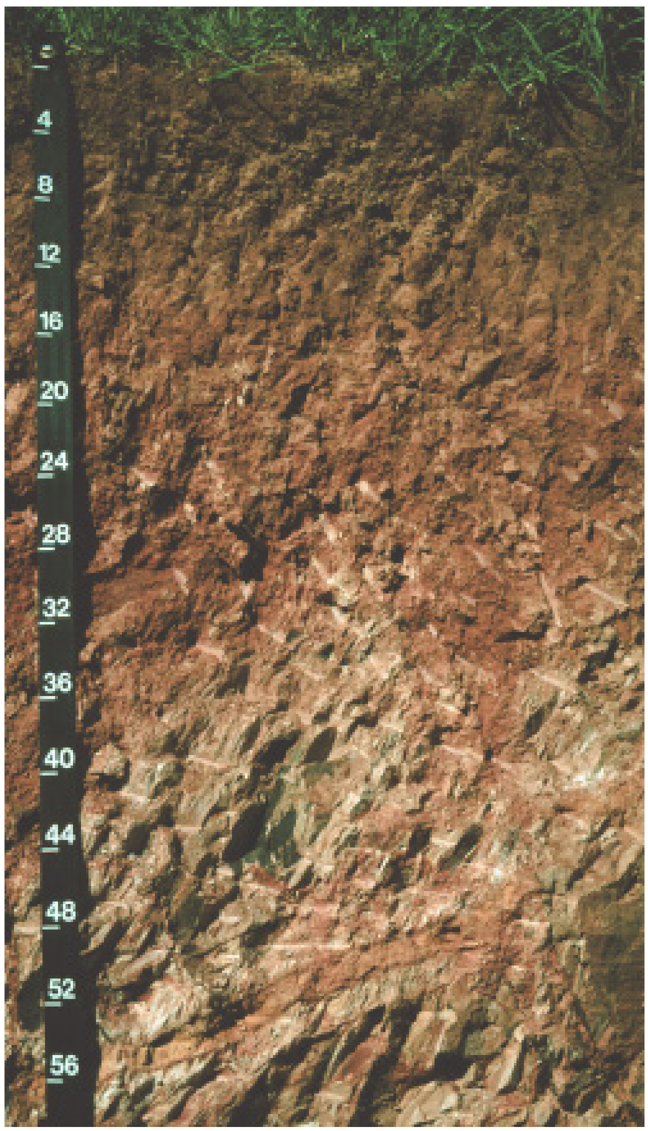


Figure 12.—Profile of a Badin soil. Badin soils formed from fine-grained metamorphic rocks within the Carolina Slate Belt. They have soft bedrock at a depth of 20 to 40 inches.

Chroma—2 to 4
Texture (fine-earth fraction)—silt loam, loam, or very fine sandy loam

BE horizon (if it occurs):
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—silt loam, loam, or silty clay loam

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—silty clay loam, silty clay, clay loam, or clay

BC horizon:
Hue—horizon has hue of 2.5YR to 10YR or is mottled with colors in range
Value—4 to 8
Chroma—3 to 8
Texture (fine-earth fraction)—silty clay loam, clay loam, or silt loam

C horizon (if it occurs):
Hue—horizon has hue of 2.5YR to 10YR or is mottled with colors in range
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—silty clay loam or silt loam saprolite

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured argillite

Callison Series

Depth class: Moderately deep
Drainage class: Moderately well drained and somewhat poorly drained
Permeability: Moderately slow
Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits and side slopes in the Carolina Slate Belt
Parent material: Residuum weathered from felsic volcanic rocks
Slope range: 2 to 10 percent
Classification: Fine-silty, siliceous, semiactive, thermic Aquic Hapludults

Typical Pedon

Callison silt loam in an area of Callison-Lignum complex, 2 to 6 percent slopes; in Chatham County, from Harpers Crossroads, about 1.8 miles north on Secondary Road 1006 to old railroad grade, about 1,000 feet east on private gravel road, in woods; Bear Creek USGS topographic quadrangle; lat. 35 degrees 35 minutes 39 seconds N. and long. 79 degrees 28 minutes 06 seconds W.

A—0 to 3 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.
E—3 to 7 inches; light olive brown (2.5Y 5/4) silt loam; weak fine granular structure; friable; common fine and medium roots; very strongly acid; aprupt smooth boundary.
BE—7 to 15 inches; olive yellow (2.5Y 6/6) silt loam; weak fine subangular blocky structure; friable; common fine roots; very strongly acid; clear smooth boundary.

Bt1—15 to 21 inches; light olive brown (2.5Y 5/6) silty clay loam; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; few fine roots; many medium distinct pale yellow (2.5Y 7/3) iron depletions; very strongly acid; gradual wavy boundary.

Bt2—21 to 30 inches; light olive brown (2.5Y 5/6) silty clay loam; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; many medium distinct light gray (2.5Y 7/1) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C—30 to 32 inches; light olive brown (2.5Y 5/6) silt loam saprolite; many medium distinct white (2.5Y 8/1) and light yellowish brown (2.5Y 6/3) mottles; massive; friable; very strongly acid; clear smooth boundary.

Cr—32 to 42 inches; weathered, moderately fractured argillite.

R—42 inches; unweathered, slightly fractured argillite.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Content and size of rock fragments: 0 to 10 percent in the A and B horizons; gravel
Depth to bedrock: 20 to 40 inches to soft bedrock; 40 to 60 inches to hard bedrock
Reaction: Moderately acid to extremely acid, except where surface layers have been limed

A or Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture—silt loam

E horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—4 to 8
Texture—silt loam or loam
Mottles (if they occur)—shades of gray, white, brown, yellow, and red

BE horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—2 to 8
Texture—silt loam or loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—silt loam, silty clay loam, silty clay, or clay
Redoximorphic features—iron depletions in shades of gray, white, and yellow; masses of iron accumulation in shades of red, brown, and yellow

Btg horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—silty clay or clay
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, and red

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—silt loam, loam, or silty clay loam
Redoximorphic features—iron depletions in shades of gray and white; masses of iron accumulation in shades of yellow, brown, and red

BCg horizon (if it occurs):
Hue—10YR or 2.5Y or neutral
Value—5 to 8
Chroma—0 to 2
Texture—silt loam or loam
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, and red

C horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—2 to 8
Texture—silt loam or loam saprolite
Mottles—shades of gray, white, yellow, brown, and red

Cg horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or loam saprolite
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, and red

Cr layer:
Type of bedrock—weathered, moderately fractured to highly fractured metavolcanic rock

R layer:
Type of bedrock—unweathered, very slightly fractured or slightly fractured metavolcanic rock

Cecil Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks (fig. 13)
Slope range: 2 to 15 percent
Classification: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded; 0.7 mile west of Liberty to the junction of Secondary Roads 2438 and 2434, about 0.6 mile southeast on Secondary Road 2434, about 100 feet west of the road; Liberty USGS topographic

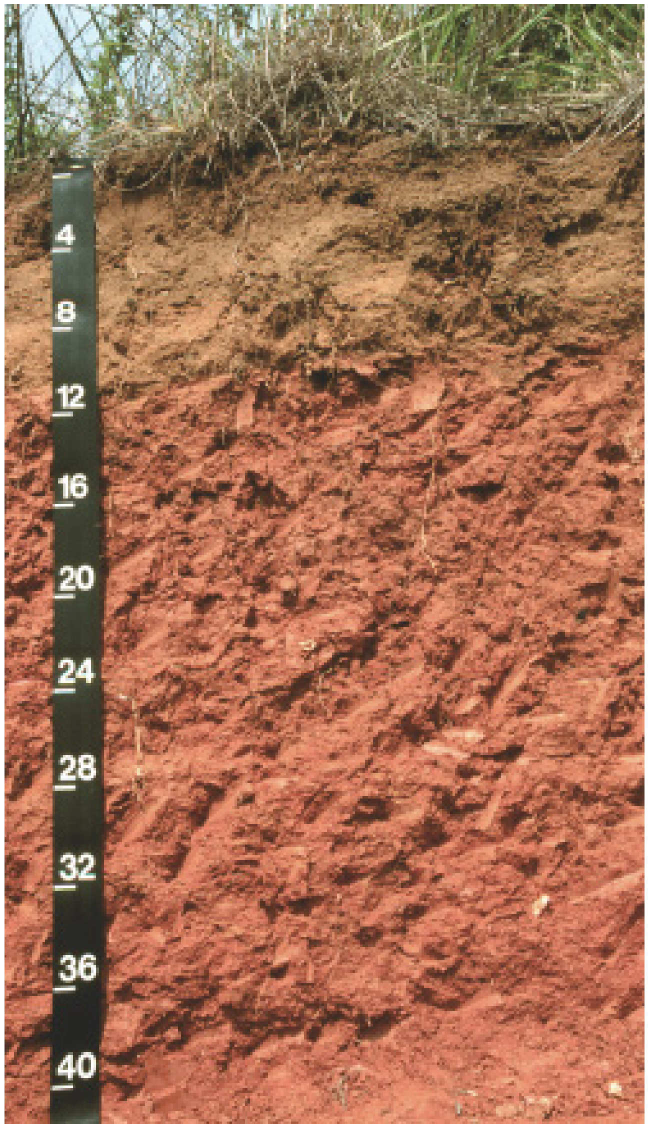


Figure 13.—Profile of a Cecil soil. Cecil soils are very deep, red soils that formed from felsic igneous or metamorphic rocks.

quadrangle; lat. 35 degrees 50 minutes 32 seconds N. and long. 79 degrees 35 minutes 29 seconds W.

Ap—0 to 8 inches; red (2.5YR 4/6) sandy clay loam; moderate medium granular structure; friable; common fine and medium roots; moderately acid; abrupt smooth boundary.

Bt—8 to 33 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; common fine roots; thin continuous clay films on faces of peds; few fine flakes of mica; moderately acid; gradual wavy boundary.

BC—33 to 60 inches; red (2.5YR 4/6) clay loam; few medium distinct strong brown (7.5YR 6/8) mottles; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; few fine roots; thin discontinuous clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.

C—60 to 63 inches; red (2.5YR 4/8) loam saprolite; few medium prominent strong brown (7.5YR 5/8) mottles; massive; friable; common fine flakes of mica; very strongly acid.

Range in Characteristics

Thickness of solum: 40 to more than 60 inches
Content and size of rock fragments: 0 to 35 percent in the A horizon and 0 to 10 percent in the B horizon; gravel
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid, except where surface layers have been limed

A or Ap horizon:
Hue—2.5YR to 10YR
Value—3 to 5
Chroma—2 to 8
Texture (fine-earth fraction)—sandy clay loam

E horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, or loam

BA or BE horizon (if it occurs):
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy clay loam, clay loam, or loam

Bt horizon:
Hue—10R or 2.5YR; ranging to 5YR with evident pattern of mottles lacking
Value—4 or 5
Chroma—6 or 8
Texture—clay loam, clay, or sandy clay

BC horizon:
Hue—10R to 5YR
Value—4 or 6
Chroma—4 to 8
Mottles—shades of yellow or brown
Texture—sandy clay loam, clay loam, or loam

C horizon:
Color—horizon is similar in color to the BC horizon or is multicolored
Mottles—shades of yellow or brown
Texture—loamy saprolite

Chenneby Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landscape: Piedmont river and stream terraces
Landform: Flood plains
Landform position: Slightly convex or concave slopes
Parent material: Recent alluvium

Slope range: 0 to 2 percent
Classification: Fine-silty, mixed, active, thermic Fluvaquentic Dystrudepts

Typical Pedon

Chenneby silt loam, 0 to 2 percent slopes, frequently flooded; in Montgomery County; 4.0 miles east of Mount Gilead on N.C. Highway 731 to Secondary Road 1542, about 1.5 miles south on Secondary Road 1542, about 255 feet west of the road in woods and 80 feet north of the stream channel; Mount Gilead East USGS topographic quadrangle; lat. 35 degrees 10 minutes 44 seconds N. and long. 79 degrees 55 minutes 53 seconds W.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium granular structure; friable; very strongly acid; clear smooth boundary.

Bw1—6 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

Bw2—10 to 34 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common medium distinct light brownish gray (10YR 6/2) irregularly shaped iron depletions; very strongly acid; gradual wavy boundary.

C1—34 to 50 inches; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/4) irregularly shaped masses of iron accumulation with clear boundaries in the matrix; common medium distinct light gray (10YR 7/2) irregularly shaped iron depletions with clear boundaries in the matrix; many fine, medium, and coarse dark brown manganese concretions; very strongly acid; gradual wavy boundary.

C2—50 to 60 inches; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; many medium distinct light gray (10YR 7/2) irregularly shaped iron depletions with clear boundaries in the matrix; many medium and coarse dark brown manganese concretions; slightly acid.

Range in Characteristics

Thickness of solum: 40 to 70 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to moderately acid in the A horizon, except where surface layers have been limed, and very strongly acid to moderately acid in the B and C horizons

A or Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4; where horizon has value of 3 and chroma of 2, it is 6 inches or less thick
Texture—silt loam

Bw horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 or 4
Texture—silt loam, silty clay loam, loam, or clay loam
Redoximorphic features—iron depletions in shades of white or gray occur in the upper 24 inches of horizon; masses of iron accumulation in shades of yellow, brown, or red may occur

Bg horizon (if it occurs):
Hue—horizon has hue of 5YR to 2.5Y or is neutral in hue
Value—4 to 6
Chroma—0 to 2

Texture—silt loam, silty clay loam, loam, or clay loam
Redoximorphic features—masses of iron accumulation in shades of red, yellow, or brown

C horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—3 or 6
Texture—ranging from silty clay to sandy loam
Redoximorphic features—iron depletions in shades of white or gray and masses of iron accumulation in shades of yellow, brown, or red

Cg horizon (if it occurs):
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—ranging from sandy loam to silty clay loam
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, or red

2C horizon (if it occurs), below a depth of 60 inches:
Texture—stratified sand, silt, and gravel

Chewacla Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landscape: Piedmont river and stream valleys
Landform: Flood plains
Landform position: Slightly concave or convex slopes
Parent material: Recent alluvium
Slope range: 0 to 2 percent
Classification: Fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts

Typical Pedon

Chewacla loam, 0 to 2 percent slopes, frequently flooded; 0.1 mile east of the intersection of Secondary Road 1171 and N.C. Highway 49, about 0.6 mile southeast of the intersection of N.C. Highway 49 and a farm road, 750 feet east of the farm road, on a flood plain; Farmer USGS topographic quadrangle; lat. 35 degrees 38 minutes 04 seconds N. and long. 79 degrees 57 minutes 41 seconds W.

Ap—0 to 10 inches; yellowish brown (10YR 5/6) loam; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.
Bw1—10 to 17 inches; yellowish brown (10YR 5/6) loam; few fine prominent brown (7.5YR 4/4) and common fine distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.
Bw2—17 to 22 inches; yellowish brown (10YR 5/6) loam; common fine distinct pale brown (10YR 6/3) and dark yellowish brown (10YR 3/4) and common fine prominent strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine distinct light gray (10YR 7/2) irregularly shaped iron depletions with clear boundaries in the matrix; very strongly acid; gradual wavy boundary.
Bw3—22 to 34 inches; light yellowish brown (2.5Y 6/4) loam; weak fine subangular blocky structure; friable; common fine prominent light brownish gray (10YR 6/2)

irregularly shaped iron depletions with clear boundaries in the matrix; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation with sharp boundaries lining pores; many fine and medium black (N 2/0) and dark reddish brown (5YR 3/4) strongly cemented manganese concretions; moderately acid; gradual wavy boundary.

Cg—34 to 64 inches; light brownish gray (2.5Y 6/2) clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; massive; many black (N 2/0) and reddish brown (5YR 4/4) strongly cemented manganese concretions; moderately acid.

Range in Characteristics

Thickness of solum: 15 to 70 inches

Content and size of rock fragments: 0 to 5 percent in the A horizon and the upper part of the B horizon and 0 to 15 percent in the lower part of the B horizon; gravel

Depth to bedrock: More than 60 inches

Reaction: Slightly acid to very strongly acid, except where surface layers have been limed; ranging from very strongly acid to slightly alkaline below a depth of 40 inches

A or Ap horizon:
Hue—5YR or 2.5YR
Value—3 to 5
Chroma—1 to 6
Texture—loam

AB or BA horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—loam, silt loam, sandy clay loam, clay loam, or silty clay loam

Bw horizon:
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—sandy clay loam, sandy loam, fine sandy loam, loam, silt loam, silty clay loam, or clay loam
Redoximorphic features—iron depletions within a depth of 24 inches; masses of iron accumulation in shades of brown, black, or red; some subhorizons do not have a dominant matrix hue but have iron depletions and masses of iron accumulation in shades of brown, red, or gray

Bg horizon (if it occurs):
Hue—10YR to 2.5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture—sandy clay loam, sandy loam, fine sandy loam, loam, silt loam, silty clay loam, or clay loam
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, or red

BC horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—sandy clay loam, sandy loam, fine sandy loam, loam, silt loam, silty clay loam, or clay loam

Redoximorphic features—iron depletions within a depth of 24 inches; masses of iron accumulation in shades of brown, black, or red; some subhorizons do not have a dominant matrix hue but have iron depletions and masses of iron accumulation in shades of brown, red, or gray

BCg horizon (if it occurs):
Hue—10YR to 2.5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture—sandy clay loam, sandy loam, fine sandy loam, loam, silt loam, silty clay loam, or clay loam
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, or red

C horizon:
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—clay loam, loam, sandy clay loam, sandy clay, fine sandy loam, sandy loam, silt loam, or silty clay loam within a depth of 40 inches; below a depth of 40 inches, variable and ranging from extremely gravelly sand to clay
Redoximorphic features—iron depletions in shades of gray

Cg horizon (if it occurs):
Hue—10YR to 2.5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture—clay loam, loam, sandy clay loam, sandy clay, fine sandy loam, sandy loam, silt loam, or silty clay loam within a depth of 40 inches; below a depth of 40 inches, variable and ranging from extremely gravelly sand to clay
Redoximorphic features—masses of iron accumulation in shades of red, yellow, or brown

Coronaca Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Broad ridges and hillslopes
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from mixed felsic to mafic high-grade metamorphic or igneous rocks
Slope range: 2 to 15 percent
Classification: Fine, kaolinitic, thermic Rhodic Paleudalfs

Typical Pedon

Coronaca clay loam, 2 to 6 percent slopes; in Guilford County; 4.5 miles south of Whitsett on N.C. Highway 61 to the junction of N.C. Highway 61 and Secondary Road 3108, about 1 mile northeast on Secondary Road 3108 to Secondary Road 3110, about 0.5 mile south on Secondary Road 3110, about 200 yards west of the road, in a cultivated field; Gibsonville USGS topographic quadrangle; lat. 36 degrees 00 minutes 05 seconds N. and long. 79 degrees 33 minutes 45 seconds W.

Ap—0 to 8 inches; dark reddish brown (2.5YR 3/4) clay loam; moderate medium granular structure; friable; common fine roots; few medium pores; neutral; abrupt smooth boundary.

Bt1—8 to 30 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; firm; sticky, plastic; few fine roots; common fine pores; common thin distinct discontinuous clay films on faces of peds; few dark mineral stains; slightly acid; gradual wavy boundary.

Bt2—30 to 52 inches; dark red (2.5YR 3/6) clay; few fine prominent reddish yellow (7.5YR 6/8) mottles; moderate medium subangular blocky structure; firm; sticky, plastic; few medium roots; few fine pores; common thin distinct discontinuous clay films on faces of peds; few dark mineral stains; slightly acid; gradual wavy boundary.

Bt3—52 to 71 inches; dark red (2.5YR 3/6) clay; common fine prominent reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; firm; sticky, plastic; few medium roots; few thin faint patchy clay films on faces of peds; few dark mineral stains; slightly acid; gradual wavy boundary.

BC—71 to 80 inches; red (2.5YR 4/6) clay loam; common medium prominent reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; few thin distinct discontinuous clay films on faces of peds; moderately acid; gradual wavy boundary.

C—80 to 95 inches; red (2.5YR 5/8) silty clay loam saprolite; many medium reddish yellow (7.5YR 6/8) mottles; massive; friable; moderately acid.

Range in Characteristics

Thickness of solum: 60 to more than 99 inches
Content and size of rock fragments: 0 to 10 percent; gravel
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to neutral throughout the profile, except where surface layers have been limed

A or Ap horizon:
Hue—5YR to 10YR
Value—2 to 3
Chroma—4 to 6
Texture—clay loam

Bt horizon (upper part):
Hue—10R or 2.5YR
Value—3
Chroma—3 to 6
Mottles—shades of yellow, brown, or red and dark streaks
Texture—clay loam or clay

Bt horizon (lower part):
Hue—10R or 2.5YR
Value—3 or 4
Chroma—6 to 8
Mottles—shades of red, yellow, or brown and dark streaks
Texture—clay or clay loam

BC horizon:
Hue—10R or 2.5YR
Value—3 to 6
Chroma—6 or 8
Mottles—shades of yellow, brown, or red and dark streaks
Texture—clay loam, silty clay loam, silt loam, or loam

C horizon (if it occurs):
Hue—10R or 5YR
Value—3 to 6
Chroma—3 to 8
Mottles—shades of red, brown, or yellow
Texture—loam, sandy clay loam, silt loam, silty clay loam, or clay loam saprolite that has 5 to 50 percent weathered crystalline rock fragments

Davidson Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits
Parent material: Residuum weathered from felsic to mafic high-grade metamorphic or igneous rocks having high contents of ferromagnesian minerals
Slope range: 2 to 8 percent
Classification: Fine, kaolinitic, thermic Rhodic Kandiudults

Typical Pedon

Davidson loam, 2 to 8 percent slopes; 0.1 mile east of the intersection of Secondary Road 1171 and N.C. Highway 49, about 0.8 mile southeast of the intersection of N.C. Highway 49 and a farm road, 30 feet north of the farm road, in woods; Farmer USGS topographic quadrangle; lat. 35 degrees 37 minutes 57 seconds N. and long. 79 degrees 57 minutes 32 seconds W.

A—0 to 8 inches; dark red (2.5YR 3/6) loam; weak fine granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.
Bt1—8 to 27 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; strongly acid; gradual wavy boundary.
Bt2—27 to 39 inches; dark red (2.5YR 3/6) clay; few medium distinct reddish yellow (7.5YR 6/8) mottles; moderate medium subangular blocky structure; common prominent clay films on faces of peds; few fine black concretions; moderately acid; gradual wavy boundary.
BC—39 to 62 inches; red (2.5YR 4/6) clay loam; weak fine subangular blocky structure; friable; few fine clay films on faces of peds; moderately acid.

Range in Characteristics

Thickness of solum: More than 60 inches
Content of rock fragments: 0 to 5 percent throughout the profile
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to slightly acid, except where surface layers have been limed

A horizon:
Hue—2.5YR or 5YR
Value—2 or 3
Chroma—2 to 6
Texture—loam

Bt horizon:
Hue—10R or 2.5YR
Value—2.5 or 3
Chroma—2 to 8
Mottles—shades of yellow or red in the lower and middle parts of horizon
Texture—clay or clay loam; range includes sandy clay loam below a depth of 60 inches

BC horizon:
Hue—10R or 2.5YR
Value—2.5 or 3
Chroma—2 to 6
Mottles—shades of yellow or red
Texture—clay loam; range includes sandy clay loam and clay below a depth of 60 inches

Dogue Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape: Piedmont river and stream valleys
Landform: Low stream terraces
Landform position: Convex summits
Parent material: Fluvial deposits
Slope range: 2 to 6 percent
Classification: Fine, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Dogue sandy loam, 2 to 6 percent slopes, occasionally flooded; 0.3 mile north of the intersection of Secondary Roads 2454 and 2440, about 100 feet west of Secondary Road 2440, in a field; Gray's Chapel USGS topographic quadrangle; lat. 35 degrees 49 minutes 50 seconds N. and long. 79 degrees 38 minutes 08 seconds W.

Ap—0 to 8 inches; light olive brown (2.5Y 5/6) sandy loam; weak fine granular structure; very friable; strongly acid; clear smooth boundary.

Bt1—8 to 19 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium faint brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—19 to 32 inches; strong brown (7.5YR 5/8) sandy clay; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; few faint clay films on faces of peds; common fine prominent light gray (10YR 7/2) irregularly shaped iron depletions with clear boundaries in the matrix; very strongly acid; abrupt smooth boundary.

Btg—32 to 45 inches; gray (2.5Y 5/1) clay; moderate medium subangular blocky structure; very firm; slightly sticky, slightly plastic; common medium clay films on faces of peds; few fine faint light gray (5Y 6/1) irregularly shaped iron depletions with clear boundaries in the matrix; common medium prominent reddish yellow (7.5YR 6/8) and strong brown (7.5YR 4/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; mildly alkaline; clear smooth boundary.

C—45 to 63 inches; strong brown (7.5YR 5/8) clay; massive; very firm; slightly sticky, slightly plastic; common medium prominent gray (5Y 5/1) irregularly shaped iron depletions with clear boundaries in the matrix; neutral.

Range in Characteristics

Thickness of solum: 30 to more than 60 inches
Content of rock fragments: 0 to 15 percent in the A, B, and BC horizons and 0 to 25 percent in the C horizon
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to strongly acid, except where surface layers have been limed

A or Ap horizon:
Hue—10YR or 2.5Y
Value—4 to 6; some pedons have value of 3 where the surface layer is less than 6 inches thick
Chroma—2 to 4
Texture—sandy loam

BE horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—4 to 8
Texture—clay loam, sandy clay loam, or loam

Bt horizon (upper part):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—clay loam, sandy clay loam, sandy clay, or clay
Redoximorphic features—iron depletions in shades of yellow or gray; masses of iron accumulation in shades of brown or red

Bt horizon (lower part):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8; horizon may also be mottled and not have a dominant matrix color
Texture—clay loam, sandy clay loam, sandy clay, or clay
Redoximorphic features—iron depletions in shades of yellow or gray; masses of iron accumulation in shades of brown or red

Btg horizon:
Hue—7.5YR to 2.5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture—clay loam, sandy clay loam, sandy clay, or clay
Redoximorphic features—iron depletions in shades of yellow or gray; masses of iron accumulation in shades of brown or red

BC or CB horizon (if it occurs):
Hue—7.5YR to 2.5Y or neutral
Value—4 to 7
Chroma—3 to 8
Texture—sandy loam, sandy clay loam, clay loam, or sandy clay
Redoximorphic features—iron depletions in shades of yellow or gray; masses of iron accumulation in shades of brown or red

BCg or CBg horizon (if it occurs):
Hue—7.5YR to 2.5Y or neutral
Value—4 to 7

Chroma—0 to 2
Texture—sandy loam, sandy clay loam, sandy clay, or clay loam
Redoximorphic features—iron depletions in shades of gray, brown, or red

C or 2C horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture (fine-earth fraction)—typically stratified and ranging from sand to sandy clay loam
Redoximorphic features—iron depletions and masses of iron accumulation in shades of gray, brown, yellow, or red

Cg or 2Cg horizon (if it occurs):
Hue—7.5YR to 2.5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture (fine-earth fraction)—typically stratified and ranging from sand to sandy clay loam
Redoximorphic features—iron depletions and masses of iron accumulation in shades of gray, yellow, brown, or red

Enon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Landscape: Piedmont uplands
Landform: Ridges and hillslopes
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from mafic volcanic and intrusive rocks
Slope range: 2 to 25 percent
Classification: Fine, mixed, active, thermic Ultic Hapludalfs

Typical Pedon

Enon sandy clay loam, 2 to 8 percent slopes, moderately eroded, in an area of Wynott-Enon complex, 2 to 8 percent slopes, moderately eroded; 0.6 mile south of the intersection of Secondary Roads 1006 and 2502, about 300 feet east of the intersection of Secondary Road 2502 and a farm road, 100 feet south of the farm road, in a field; Climax USGS topographic quadrangle; lat. 35 degrees 53 minutes 25 seconds N. and long. 79 degrees 38 minutes 48 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) sandy clay loam; weak medium granular structure; friable; common fine and medium roots; few fine black concretions and rock fragments; strongly acid; clear smooth boundary.
Bt—8 to 17 inches; strong brown (7.5YR 5/8) clay; strong medium subangular blocky structure; very firm; sticky, plastic; many distinct clay films on faces of peds; few fine roots between peds; common fine and medium black concretions; moderately acid; gradual wavy boundary.
BC—17 to 35 inches; strong brown (7.5YR 5/8) clay loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; many medium black concretions; slightly acid; gradual wavy boundary.
C1—35 to 46 inches; strong brown (7.5YR 5/8) sandy loam saprolite; massive; many medium black concretions; neutral; gradual wavy boundary.

C2—46 to 62 inches; mottled strong brown (7.5YR 5/8), brownish yellow (10YR 6/8), black (10YR 2/1), and dark greenish gray (5GY 4/1) sandy loam saprolite; massive; friable; neutral.

Range in Characteristics

Thickness of solum: 20 to 50 inches
Content of rock fragments: 0 to 60 percent in the A, Ap, and E horizons and 0 to 15 percent in the lower horizons
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid in the upper part of the profile, except where surface layers have been limed; strongly acid to mildly alkaline in the lower part

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture (fine-earth fraction)—sandy clay loam; loam or sandy loam in uneroded areas

E horizon (if it occurs):
Hue—10YR to 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture (fine-earth fraction)—sandy loam, fine sandy loam, or loam

BA or BE horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, clay loam, or sandy clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles (if they occur)—shades of yellow, red, brown, or black
Texture—clay or clay loam

BC or CB horizon (if it occurs):
Hue—7.5YR to 5Y
Value—4 to 6
Chroma—3 to 8
Mottles (if they occur)—shades of brown or yellow
Texture—sandy clay loam, clay loam, or loam

C horizon:
Color—multicolored in shades of brown, yellow, gray, and black
Texture—variable; typically loamy saprolite

Georgeville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate

Landscape: Piedmont uplands
Landform: Broad ridges and hillslopes
Landform position: Convex summits and side slopes in the Carolina Slate Belt
Parent material: Residuum weathered from felsic volcanic rocks or other fine-grained rocks in the Carolina Slate Belt
Slope range: 2 to 45 percent
Classification: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded; 2 miles southeast of the intersection of U.S. Highway 220 and N.C. Highway 705 in Seagrove, 100 feet northeast of N.C. Highway 705, in a field; Seagrove USGS topographic quadrangle; lat. 35 degrees 31 minutes 21 seconds N. and long. 79 degrees 45 minutes 04 seconds W.

Ap—0 to 8 inches; yellowish red (5YR 4/6) silty clay loam; weak medium granular structure; very friable; common fine roots; few quartz pebbles about 1/4 inch in size; moderately acid; clear smooth boundary.
Bt—8 to 30 inches; red (2.5YR 4/8) clay; moderate fine and medium subangular blocky structure; firm; slightly sticky, slightly plastic; few fine roots; many thin continuous clay films on faces of peds; strongly acid; clear wavy boundary.
BC—30 to 44 inches; red (2.5YR 4/8) silty clay loam; few fine prominent reddish yellow (5YR 6/8) mottles; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; few white minerals; strongly acid; gradual wavy boundary.
C—44 to 63 inches; red (2.5YR 5/8) silt loam saprolite; common fine prominent light reddish brown (5YR 6/4) and very pale brown (10YR 7/4) streaks; massive; very friable; very strongly acid.

Range in Characteristics

Thickness of solum: 40 to more than 60 inches (fig. 14)
Depth to bedrock: More than 60 inches
Reaction: Strongly acid or very strongly acid
Content and size of rock fragments: 0 to 20 percent quartz gravel or 36 percent stones and boulders in some pedons

A or Ap horizon:
Hue—2.5YR to 10YR or neutral
Value—4 or 5
Chroma—0 to 8
Texture (fine-earth fraction)—silty clay loam

E horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—3 to 8
Texture (fine-earth fraction)—silt loam, loam, sandy loam, fine sandy loam, or very fine sandy loam

Bt horizon:
Hue—10R to 5YR
Value—4 or 5
Chroma—6 or 8
Mottles—shades of red, yellow, or brown
Texture (fine-earth fraction)—clay loam, silty clay loam, silty clay, or clay

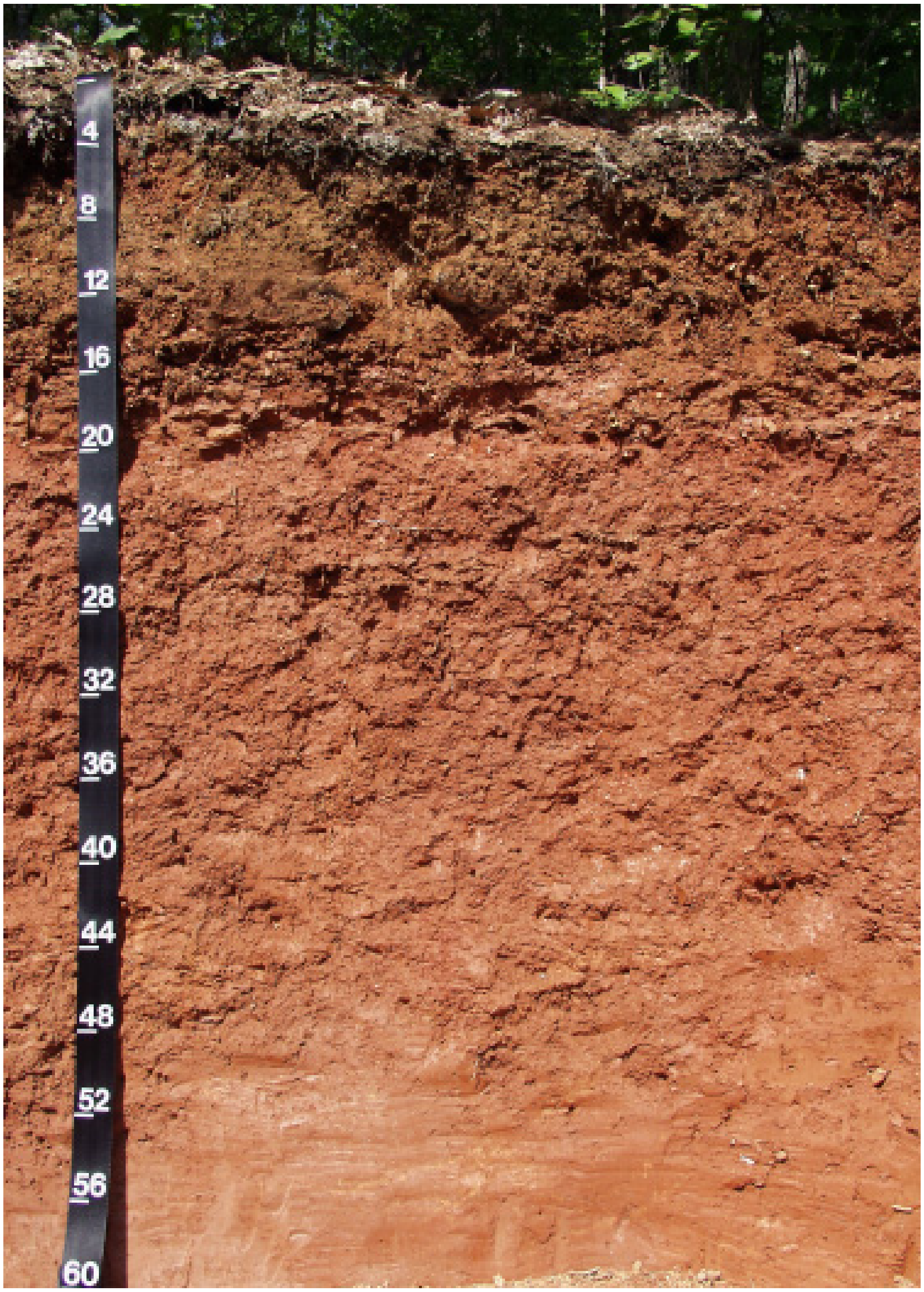


Figure 14.—Profile of a Georgeville soil. Georgeville soils formed from felsic volcanic rocks within the Carolina Slate Belt. They are very erosive because of their high silt content. Depth to bedrock is more than 60 inches.

BC horizon:

Hue—10R to 5YR
Value—4 to 6
Chroma—6 or 8
Mottles—shades of yellow or brown
Texture (fine-earth fraction)—silt loam, loam, silty clay loam, or clay loam

C horizon:
Hue—10R to 10YR
Value—4 to 6
Chroma—3 to 8
Mottles—shades of red, yellow, brown, or gray
Texture (fine-earth fraction)—silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam, or silty clay loam saprolite

Goldston Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Landscape: Piedmont uplands
Landform: Ridges
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from felsic volcanic or other fine-grained rocks in the Carolina Slate Belt
Slope range: 4 to 45 percent
Classification: Loamy-skeletal, siliceous, semiactive, thermic, shallow Typic Dystrudepts

Typical Pedon

Goldston very channery silt loam, 15 to 50 percent slopes; 0.8 mile south of the intersection of Secondary Roads 1183 and 1102, about 300 feet east of Secondary Road 1102, in woods; Handy USGS topographic quadrangle; lat. 35 degrees 34 minutes 19 seconds N. and long. 80 degrees 01 minute 52 seconds W.

A—0 to 10 inches; light yellowish brown (10YR 6/4) very channery silt loam; weak fine granular structure; very friable; common fine and medium roots; 40 percent, by volume, channers ranging from 1/4 inch to 3 inches in size; very strongly acid; clear smooth boundary.
Bw—10 to 16 inches; strong brown (7.5YR 5/8) very channery silt loam; weak fine granular structure; friable; common fine and medium roots; 48 percent, by volume, channers ranging from 1/4 inch to 3 inches in size; very strongly acid; gradual wavy boundary.
Cr—16 to 23 inches; weathered, highly fractured fine-grained felsic metavolcanic rock that can be dug with difficulty with a spade; few seams of strong brown (7.5YR 5/8) silt loam saprolite in cracks.
R—23 inches; unweathered, hard, moderately fractured felsic volcanic rock.

Range in Characteristics

Thickness of solum: 10 to 20 inches
Depth to bedrock: 10 to 20 inches to soft bedrock; 20 to 40 inches to hard bedrock (fig. 15)
Reaction: Extremely acid to moderately acid throughout the profile, except where surface layers have been limed
Content and size of rock fragments: More than 35 percent, by volume; 1/4 inch to 6 inches or more in size

A or Ap horizon:
Hue—10YR or 2.5Y
Value—4 to 6

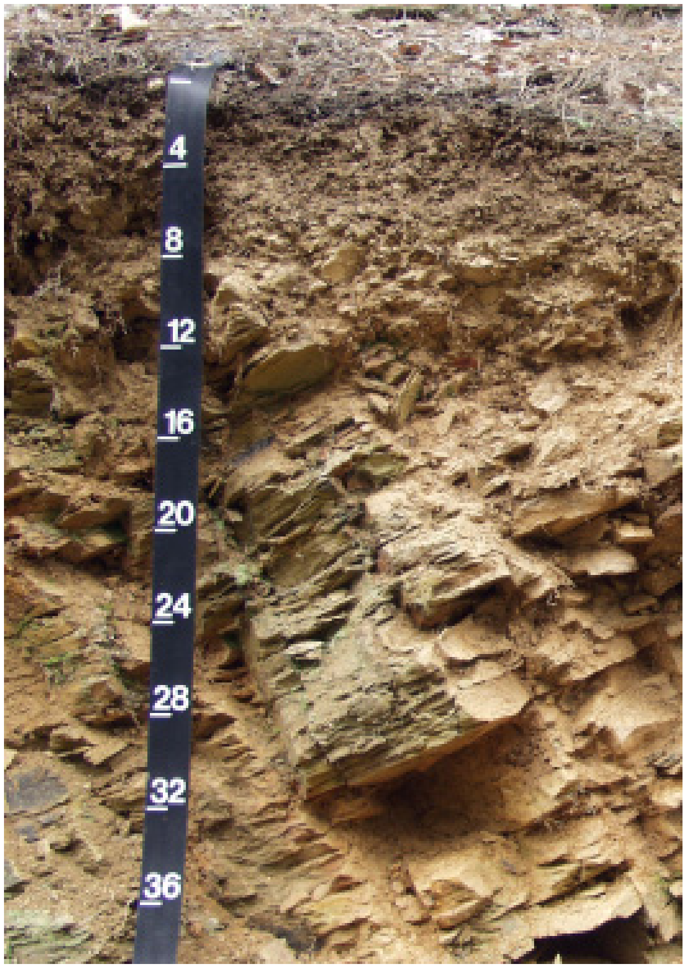


Figure 15.—Profile of a Goldston soil. Goldston soils have hard fractured bedrock at a depth of 20 to 40 inches. They have a weighted average of more than 35 percent coarse fragments, by volume.

Chroma—1 to 4
Texture (fine-earth fraction)—silt loam

E horizon (if it occurs):
Hue—10YR to 2.5Y
Value—4 to 7
Chroma—2 to 6
Texture (fine-earth fraction)—silt loam or very fine sandy loam

Bw or AC horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Mottles—shades of brown, yellow, or red
Texture (fine-earth fraction)—silt loam or very fine sandy loam

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured felsic volcanic rock or other fine-grained rock in the Carolina Slate Belt that can be dug with difficulty with a spade

R layer:
Type of bedrock—unweathered, very slightly fractured to highly fractured felsic volcanic rock or other fine-grained rock in the Carolina Slate Belt

Helena Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Slope range: 2 to 10 percent
Classification: Fine, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Helena sandy loam, 2 to 6 percent slopes; 2.2 miles northeast of the intersection of N.C. Highway 22 and Secondary Road 2628, about 1.5 miles east of Parks Crossroads on Secondary Road 2642, about 75 feet north of Secondary Road 2642, in a field; Coleridge USGS topographic quadrangle; lat. 35 degrees 42 minutes 05 seconds N. and long. 79 degrees 35 minutes 10 seconds W.

Ap—0 to 8 inches; brown (7.5YR 5/4) sandy loam; weak fine granular structure; very friable; few fine roots; slightly acid; clear smooth boundary.
E—8 to 12 inches; very pale brown (10YR 7/3) sandy loam; weak fine granular structure; very friable; few fine roots; slightly acid; gradual wavy boundary.
Bt1—12 to 17 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; few faint clay films on faces of peds; slightly acid; gradual wavy boundary.
Bt2—17 to 20 inches; brownish yellow (10YR 6/6) sandy clay; moderate medium subangular blocky structure; very firm; sticky, plastic; common medium prominent light gray (10YR 7/2) iron depletions; common distinct clay films on faces of peds; strongly acid; gradual wavy boundary.
Btg—20 to 42 inches; light gray (10YR 7/2) clay; moderate medium subangular blocky structure; very firm; sticky, very plastic; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; common medium distinct clay films on faces of peds; strongly acid; gradual wavy boundary.
C—42 to 60 inches; yellow (10YR 7/6) sandy loam saprolite; massive; friable; few veins of gray clay; very strongly acid.

Range in Characteristics

Thickness of solum: 40 to more than 60 inches
Content of rock fragments: 0 to 35 percent, by volume, throughout the profile
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to extremely acid

A or Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture (fine-earth fraction)—sandy loam

E horizon:
Hue—10YR to 5Y
Value—5 to 8
Chroma—2 to 4
Texture (fine-earth fraction)—loamy sand, loamy coarse sand, coarse sandy loam, fine sandy loam, sandy loam, or loam

BE or BA horizon (if it occurs):
Hue—7.5YR to 5Y
Value—5 to 8
Chroma—3 to 8
Texture (fine-earth fraction)—clay loam or sandy clay loam

Bt horizon:
Hue—7.5YR to 5Y; in some pedons, the lower part of horizon has hue of 5YR or is mottled in shades of yellow, brown, gray, or red
Value—5 to 8
Chroma—3 to 8
Texture (fine-earth fraction)—clay loam, sandy clay, or clay
Redoximorphic features—iron depletions with chroma of 2 or less within 24 inches of the upper boundary of horizon; masses of iron accumulation in shades of yellow, red, or brown

Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—clay loam, sandy clay, or clay
Redoximorphic features—soft masses of iron accumulation in shades of yellow, brown, or red

BC or BCg horizon (if it occurs):
Color—similar to the Bt or Btg horizon
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam, fine sandy loam, or sand

C horizon:
Hue—5YR to 5Y
Value—5 to 8
Chroma—3 to 8
Mottles—shades of gray, yellow, brown, red, or white
Texture—sandy loam, fine sandy loam, sandy clay loam, or loam saprolite; bodies or seams of clay loam or clay occur in some pedons

Cg horizon (if it occurs):
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, sandy clay loam, or loam saprolite; bodies or seams of clay loam or clay occur in some pedons
Redoximorphic features—soft masses of iron accumulation in shades of yellow, brown, or red

Lignum Series

Depth class: Deep
Drainage class: Moderately well drained and somewhat poorly drained
Permeability: Moderately slow and slow
Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits in the Carolina Slate Belt
Parent material: Residuum weathered from meta-argillite
Slope range: 2 to 6 percent
Classification: Fine, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Lignum silt loam in an area of Callison-Lignum complex, 2 to 6 percent slopes; 0.9 mile southeast of the intersection of Secondary Roads 2891 and 1002, about 50 feet south of Secondary Road 2891, in woods; Erect USGS topographic quadrangle; lat. 35 degrees 35 minutes 45 seconds N. and long. 79 degrees 38 minutes 00 seconds W.

A—0 to 6 inches; pale yellow (2.5YR 7/4) silt loam; weak fine granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.
E—6 to 11 inches; very pale brown (10YR 7/4) silt loam; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.
Bt1—11 to 15 inches; brownish yellow (10YR 6/6) silty clay loam; moderate medium subangular blocky structure; firm; sticky, plastic; few fine distinct light gray (10YR 7/2) irregularly shaped iron depletions; very strongly acid; gradual wavy boundary.
Bt2—15 to 22 inches; brownish yellow (10YR 6/8) silty clay loam; moderate medium subangular blocky structure; firm; sticky, plastic; common medium prominent reddish yellow (5YR 6/8) masses of iron accumulation throughout; common medium distinct light gray (10YR 7/2) irregularly shaped iron depletions throughout; very strongly acid; gradual wavy boundary.
Bt3—22 to 29 inches; yellow (10YR 7/8), strong brown (7.5YR 5/6), red (2.5YR 4/8), and light gray (10YR 7/2) silty clay; strong medium angular blocky structure; very firm; very sticky, very plastic; gray areas are iron depletions, brown and red areas are masses of iron accumulation; strongly acid; gradual wavy boundary.
BC—29 to 47 inches; reddish yellow (7.5YR 6/6) silt loam; common medium distinct white (2.5Y 8/2) mottles; weak fine granular structure; strongly acid; gradual wavy boundary.
Cr—47 to 60 inches; weathered, moderately fractured meta-argillite.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Content of rock fragments: 0 to 25 percent in the A and E horizons, 0 to 15 percent in the B horizon, and 0 to 30 percent in the C horizon
Depth to bedrock: 40 to 60 inches to soft bedrock; more than 60 inches to hard bedrock
Reaction: Very strongly acid or strongly acid, except where surface layers have been limed

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—1 to 4
Texture (fine-earth fraction)—silt loam

E horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—1 to 6
Texture (fine-earth fraction)—silt loam, loam, or very fine sandy loam

BA or BE horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture (fine-earth fraction)—loam, silt loam, clay loam, or silty clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—silty clay loam, silty clay, clay loam, or clay
Redoximorphic features—iron depletions with chroma of 2 or less within 24 inches of the upper boundary of horizon; masses of iron accumulation in shades of red or brown

Btg horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—silty clay loam, silty clay, clay loam, or clay
Redoximorphic features—soft masses of iron accumulation in shades of yellow, brown, or red

BC or CB horizon (if it occurs):
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—3 to 8
Texture—loam, silt loam, clay loam, or silty clay loam
Redoximorphic features—shades of gray, white, yellow, brown, or red

BCg or CBg horizon (if it occurs):
Hue—7.5YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—loam, silt loam, clay loam, or silty clay loam
Redoximorphic features—shades of brown, yellow, or red

C horizon:
Color—variable
Texture (fine-earth fraction)—sandy clay loam, silty clay loam, silt, or silt loam saprolite

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured meta-argillite that can be dug with difficulty with a spade

Mecklenburg Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow

Landscape: Piedmont uplands
Landform: Broad ridges
Landform position: Convex summits and side slopes
Parent material: Mafic high-grade metamorphic or igneous rocks
Slope range: 2 to 25 percent
Classification: Fine, mixed, active, thermic Ultic Hapludalfs

Typical Pedon

Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded; 0.5 mile northwest of the intersection of N.C. Highway 62 and Secondary Road 1547, about 0.2 mile west of the intersection of a farm road and Secondary Road 1547, in a field; Fair Grove USGS topographic quadrangle; lat. 35 degrees 51 minutes 27 seconds N. and long. 82 degrees 02 minutes 50 seconds W.

Ap—0 to 3 inches; red (2.5YR 4/6) clay loam; moderate medium granular structure; friable; common fine roots; strongly acid; clear smooth boundary.
BA—3 to 10 inches; red (2.5YR 4/6) clay loam; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; strongly acid; gradual wavy boundary.
Bt1—10 to 25 inches; red (2.5YR 4/8) clay; moderate medium angular blocky structure; very firm; sticky, plastic; slightly acid; gradual wavy boundary.
Bt2—25 to 35 inches; red (2.5YR 4/8) clay; few fine prominent reddish yellow (7.5YR 6/8) mottles; moderate medium angular blocky structure; very firm; sticky, plastic; slightly acid; gradual wavy boundary.
C—35 to 62 inches; red (2.5YR 5/8) loam saprolite; common medium prominent reddish yellow (7.5YR 6/8) mottles; massive; friable; neutral.

Range in Characteristics

Thickness of solum: 20 to 58 inches
Content of rock fragments: 0 to 20 percent, by volume, in the A horizon and 0 to 10 percent in the B horizon
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid in the A horizon; moderately acid to neutral in the B and C horizons

A or Ap horizon:
Hue—2.5YR to 7.5YR
Value—3 to 6; where moist value is less than 4, horizon is less than 6 inches thick
Chroma—2 to 6
Texture (fine-earth fraction)—clay loam

BA or BE horizon:
Hue—2.5YR or 5YR
Value—3 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, or loam

Bt horizon:
Hue—2.5YR or 5YR
Value—3 to 6
Chroma—4 to 8
Mottles—shades of yellow, red, or brown
Texture (fine-earth fraction)—clay

BC horizon (if it occurs):
Hue—2.5YR to 7.5YR
Value—4 to 7
Chroma—4 to 8

Mottles—shades of brown, yellow, white, or black
Texture—loam, sandy clay loam, or clay loam

C horizon:
Hue—2.5YR to 7.5YR
Value—4 to 7
Chroma—4 to 8; horizon may be mottled in colors of range
Texture—clay loam, loam, or silt loam saprolite

Misenheimer Series

Depth class: Shallow
Drainage class: Somewhat poorly drained
Permeability: Rapid
Landscape: Piedmont uplands
Landform: Ridges
Landform position: Convex side slopes in the Carolina Slate Belt
Parent material: Residuum weathered from felsic volcanic rocks
Slope range: 6 to 10 percent
Classification: Loamy, siliceous, semiactive, thermic, shallow Aquic Dystrudepts

Typical Pedon

Misenheimer channery silt loam in an area of Callison-Misenheimer complex, 6 to 10 percent slopes; 600 feet west of the intersection of Secondary Roads 1003 and 2870, about 400 feet north of Secondary Road 2870, in woods; Erect USGS topographic quadrangle; lat. 35 degrees 32 minutes 40 seconds N. and long. 79 degrees 39 minutes 37 seconds W.

A—0 to 8 inches; light yellowish brown (10YR 6/4) channery silt loam; weak medium granular structure; very friable; many fine and medium roots; 18 percent, by volume, rock fragments ranging from $^1/_4$ inch to 2 inches in size; very strongly acid; clear smooth boundary.
Bw—8 to 16 inches; brownish yellow (10YR 6/8) channery silty clay loam; weak medium subangular blocky structure; friable; common fine roots; few medium distinct light gray (10YR 7/2) iron depletions; 20 percent, by volume, rock fragments ranging from $^1/_4$ inch to 2 inches in size; very strongly acid; gradual irregular boundary.
Cr—16 to 22 inches; weathered, fractured meta-argillite that can be dug with difficulty with a spade; few seams of light brownish gray (2.5Y 6/2) silt loam in cracks.
R—22 inches; unweathered, slightly fractured meta-argillite.

Range in Characteristics

Thickness of solum: Less than 20 inches
Depth to bedrock: 10 to 20 inches to soft bedrock; 20 to 40 inches to hard bedrock
Reaction: Extremely acid to strongly acid, except where surface layers have been limed
Content of rock fragments: 15 to 35 percent in the A and B horizons and 15 to 60 percent in the C horizon

A or Ap horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—1 to 4
Texture (fine-earth fraction)—silt loam

E horizon (if it occurs):
Hue—10YR to 5Y
Value—5 to 7
Chroma—2 to 4
Texture (fine-earth fraction)—silt loam or loam

Bw horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—3 to 6
Texture (fine-earth fraction)—loam, silt loam, or silty clay loam
Redoximorphic features—iron depletions in shades of gray and masses of iron accumulation in shades of red, brown, or yellow

C horizon (if it occurs):
Color—multicolored with hue of 10YR to 5Y
Texture (fine-earth fraction)—silt loam saprolite

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured meta-argillite

R layer:
Type of bedrock—unweathered, very slightly fractured meta-argillite

Pacolet Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Slope range: 8 to 45 percent
Classification: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Pacolet fine sandy loam, 15 to 30 percent slopes; 1 mile east of the intersection of N.C. Highway 22 and Secondary Road 2445, about 1,000 feet north of Secondary Road 2445, in woods; Grays Chapel USGS topographic quadrangle; lat. 35 degrees 51 minutes 09 seconds N. and long. 79 degrees 41 minutes 12 seconds W.

A—0 to 3 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear wavy boundary.
E—3 to 12 inches; dark yellowish brown (10YR 4/6) fine sandy loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; gradual wavy boundary.
Bt—12 to 20 inches; red (2.5YR 5/8) clay; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; common distinct clay films on faces of peds; few medium roots; strongly acid; gradual wavy boundary.
BC—20 to 37 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few flakes of mica; strongly acid; gradual wavy boundary.
C—37 to 63 inches; yellowish red (5YR 5/8) sandy loam saprolite; common medium prominent yellow (10YR 7/6) mottles; massive; friable; strongly acid.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Content and size of rock fragments: 0 to 35 percent in the A and E horizons and 0 to 15 percent in the B horizon; mostly gravel
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to very strongly acid, except where surface layers have been limed

A or Ap horizon:
Hue—2.5YR to 10YR
Value—3 to 5
Chroma—1 to 8
Texture (fine-earth fraction)—fine sandy loam

E horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loamy coarse sand, loamy sand, fine sandy loam, or loam

BA or BE horizon (if it occurs):
Hue—2.5YR to 10YR
Value—4 or 5
Chroma—3 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, or loam

Bt horizon:
Hue—10R or 2.5YR
Value—4 or 5
Chroma—6 or 8
Mottles (if they occur)—shades of yellow, red, or brown
Texture—clay, sandy clay, or clay loam

BC horizon:
Hue—10R to 5YR
Value—4 or 5
Chroma—6 or 8
Mottles (if they occur)—shades of red, yellow, or brown
Texture—clay loam, sandy clay loam, loam, or sandy loam

C horizon:
Hue—horizon has hue of 10R to 5YR or is multicolored
Value—4 or 5
Chroma—6 or 8
Mottles—shades of yellow, red, or brown
Texture—loamy saprolite

Poindexter Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Ridges and hillslopes

Landform position: Convex side slopes
Parent material: Residuum weathered from mafic intrusive rocks
Slope range: 2 to 45 percent
Classification: Fine-loamy, mixed, active, thermic Typic Hapludalfs

Typical Pedon

Poindexter loam in an area of Wilkes-Poindexter-Wynott complex, 8 to 15 percent slopes; 0.8 mile northwest of the intersection of Secondary Roads 1571 and 1004, about 0.4 mile south of the intersection of Secondary Road 1004 and a farm road, 250 feet east of the farm road, in woods; Glenola USGS topographic quadrangle; lat. 35 degrees 52 minutes 26 seconds N. and long. 79 degrees 56 minutes 37 seconds W.

A—0 to 4 inches; light yellowish brown (2.5Y 6/4) loam; weak fine granular structure; very friable; few fine and medium roots; very strongly acid; clear smooth boundary.
E—4 to 12 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine granular structure; very friable; few fine and medium roots; very strongly acid; gradual wavy boundary.
Bt—12 to 18 inches; yellow (10YR 7/8) sandy clay loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; moderately acid; gradual wavy boundary.
BC—18 to 23 inches; strong brown (7.5YR 5/6), yellowish red (5YR 5/6), and white (5YR 8/1) sandy clay loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; slightly acid; gradual wavy boundary.
Cr—23 to 42 inches; weathered, moderately fractured diabase that can be dug with difficulty with a spade.
R—42 inches; unweathered diabase.

Range in Characteristics

Thickness of solum: 14 to 36 inches
Content and size of rock fragments: 0 to 35 percent throughout the profile; mostly gravel
Depth to bedrock: 20 to 40 inches to soft bedrock (fig. 16); 40 to 60 inches to hard bedrock
Reaction: Very strongly acid to neutral, except where surface layers have been limed

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture (fine-earth fraction)—loam

E horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, or silt loam

BA, BE, or EB horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, or silt loam

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6

Figure 16.—Profile of a Poindexter soil. Poindexter soils have soft bedrock at a depth of 20 to 40 inches. They formed from mafic intrusive rocks. Clay content ranges from 18 to 35 percent.

Chroma—4 to 8
Mottles (if they occur)—shades of black, gray, or red
Texture (fine-earth fraction)—loam, silt loam, sandy clay loam, or clay loam

BC or CB horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles—shades of brown, white, or red
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, or silt loam

C horizon (if it occurs):
Color—mottled in shades of brown, yellow, black, green, olive, or gray
Texture—sandy loam, fine sandy loam, silt loam, sandy clay loam, or silty clay loam saprolite

Cr layer:
Type of bedrock—weathered, moderately fractured mafic intrusive rock

Rion Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Ridges and hillslopes
Landform position: Convex side slopes
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Slope range: 8 to 25 percent
Classification: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Rion loamy sand, 8 to 15 percent slopes; 0.3 mile northeast of the intersection of Secondary Roads 2662 and 2642, about 0.3 mile east of the intersection of Secondary Road 2642 and a farm road, 500 feet southwest of the farm road, in a field; Coleridge USGS topographic quadrangle; lat. 35 degrees 42 minutes 30 seconds N. and long. 79 degrees 35 minutes 12 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; loose; few fine roots; slightly acid; clear wavy boundary.

E—10 to 14 inches; pale brown (10YR 6/3) loamy sand; weak fine granular structure; loose; moderately acid; clear wavy boundary.

Bt1—14 to 22 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; thin discontinuous clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt2—22 to 32 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; thin discontinuous clay films on faces of peds; strongly acid; gradual wavy boundary.

C—32 to 60 inches; strong brown (7.5YR 5/8) sandy loam saprolite; common medium prominent white (10YR 8/2) mottles; massive; friable; strongly acid.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Content and size of rock fragments: 0 to 12 percent; mostly gravel
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to slightly acid, except where surface layers have been limed

A or Ap horizon:
Hue—5YR to 2.5Y
Value—4 to 6; value of 3 in pedons where the horizon is less than 6 inches thick
Chroma—2 to 6
Texture—loamy sand

E horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loamy coarse sand, loamy sand, fine sandy loam, loam, or sandy loam

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6

Chroma—4 to 8
Mottles (if they occur)—shades of brown, yellow, red, or gray
Texture—sandy clay loam, coarse sandy loam, fine sandy loam, sandy loam, or clay loam; thin layers of sandy clay in some pedons

BC horizon (if it occurs):
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—shades of red, brown, gray, or white
Texture—loam, sandy loam, fine sandy loam, sandy clay loam, or clay loam

C horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—shades of brown, yellow, red, gray, or white
Texture—loamy sand, coarse sandy loam, sandy loam, fine sandy loam, or sandy clay loam saprolite

Riverview Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont river and stream valleys
Landform: Flood plains
Landform position: Planar to slightly convex slopes
Parent material: Recent alluvium
Slope range: 0 to 2 percent
Classification: Fine-loamy, mixed, active, thermic Fluventic Dystrudepts

Typical Pedon

Riverview sandy loam, 0 to 2 percent slopes, frequently flooded; 0.4 mile west of the intersection of Old River Road and U.S. Highway 220 Business, 1,000 feet west of Mt. Lebanon Methodist Church in Randleman, in a field; Randleman USGS topographic quadrangle; lat. 35 degrees 49 minutes 35 seconds N. and long. 79 degrees 48 minutes 32 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; friable; few fine roots; moderately acid; clear smooth boundary.
Bw1—8 to 16 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common medium distinct dark brown (10YR 3/3) iron depletions; strongly acid; gradual wavy boundary.
Bw2—16 to 36 inches; dark yellowish brown (10YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; many coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation; many coarse distinct dark brown (10YR 3/3) iron depletions; few manganese concretions; strongly acid; gradual wavy boundary.
C—36 to 40 inches; yellowish brown (10YR 5/4) sandy loam; massive; friable; strongly acid; abrupt smooth boundary.
2C—40 to 60 inches; strong brown (7.5YR 5/6) sandy clay loam that has thin strata of sandy clay; massive; friable; strongly acid.

Range in Characteristics

Thickness of solum: 24 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to very strongly acid, except where surface layers have been limed

A or Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 6
Texture—sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 8; subhorizon that has hue of 5YR, value of 4 or 5, and chroma of 3 or 4 occurs in some pedons
Texture—clay loam, sandy clay loam, loam, fine sandy loam, silt loam, or silty clay loam
Redoximorphic features—iron depletions with chroma of 2 or less at a depth of 24 inches or more in some pedons

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 8
Texture—sandy loam, loam, fine sandy loam, or sandy clay loam
Redoximorphic features—iron depletions in shades of gray; soft masses of iron accumulation in shades of yellow, brown, or red

C or 2C horizon:
Hue—7.5YR or 10YR
Value—4 to 8
Chroma—4 to 8
Texture—loam, fine sandy loam, sandy loam, loamy fine sand, sand, or loamy sand; thin strata of silty clay loam in some pedons
Redoximorphic features—iron depletions in shades of gray; soft masses of iron accumulation in shades of yellow, brown, or red

Shellbluff Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont river and stream valleys
Landform: Flood plains
Landform position: Planar to slightly convex slopes
Parent material: Recent alluvium
Slope range: 0 to 2 percent
Classification: Fine-silty, mixed, active, thermic Fluventic Dystrudepts

Typical Pedon

Shellbluff silt loam, 0 to 2 percent slopes, occasionally flooded; in Montgomery County; 1.8 miles north of Uwharrie on N.C. Highway 109 to Secondary Road 1153, about 0.5 mile south on Secondary Road 1153 to U.S. Forest Service Road 576, about 0.2 mile

west on U.S. Forest Service Road 576 to U.S. Forest Service Road 555, about 2.6 miles south on U.S. Forest Service Road 555 to a camping area along the Uwharrie River, 125 north of the river, in woods; Badin USGS topographic quadrangle; lat. 35 degrees 24 minutes 01 second N. and long. 80 degrees 01 minute 58 seconds W.

A—0 to 4 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bw1—4 to 27 inches; strong brown (7.5YR 5/6) silt loam; many coarse distinct yellowish brown (10YR 5/6) and common medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

Bw2—27 to 38 inches; light olive brown (2.5Y 5/4) silt loam; weak medium subangular blocky structure; friable; common medium distinct very pale brown (10YR 7/3) iron depletions; strongly acid; gradual wavy boundary.

C—38 to 60 inches; light olive brown (2.5YR 5/4) silt loam; massive; friable; common medium distinct pale brown (10YR 6/3) and common medium distinct light gray (10YR 7/2) iron depletions; few fine flakes of mica; many coarse brown and black manganese concretions; moderately acid.

Range in Characteristics

Thickness of solum: 20 to more than 40 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to slightly acid throughout the profile, except where surface layers have been limed

A or Ap horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 8
Texture—silt loam

Bw horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—silty clay loam, clay loam, silt loam, or loam
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, or red and iron depletions with chroma of 2 or less at depths of 24 inches or more

C or Cg horizon:
Hue—5YR or 2.5Y
Value—3 to 8
Chroma—1 to 8
Texture—horizon is commonly silty clay loam, clay loam, silt loam, or loam, or it is stratified silty clay loam, silt loam, sandy clay loam, loam, fine sandy loam, sandy loam, loamy fine sand, or loamy sand
Redoximorphic features—masses of iron accumulation in shades of yellow, brown, or red; iron depletions in shades of white or gray

State Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont river and stream valleys

Landform: Stream terraces
Landform position: Convex summits
Parent material: Fluvial deposits
Slope range: 2 to 6 percent
Classification: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

State silt loam, 2 to 6 percent slopes; 0.75 mile south of the intersection of Secondary Roads 1143 and 1107, about 0.4 mile west of the intersection of Secondary Road 1107 and a farm path, in a field; Eleazer USGS topographic quadrangle; lat. 35 degrees 32 minutes 57 seconds N. and long. 79 degrees 58 minutes 44 seconds W.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.
BE—6 to 15 inches; dark yellowish brown (10YR 4/6) silt loam; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; gradual wavy boundary.
Bt—15 to 34 inches; strong brown (7.5YR 6/8) sandy clay loam; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.
BC—34 to 47 inches; strong brown (7.5YR 6/8) fine sandy loam; common medium prominent light red (2.5YR 6/8) mottles; weak fine subangular blocky structure; friable; very strongly acid; gradual wavy boundary.
C—47 to 62 inches; mottled strong brown (7.5YR 6/8), pale brown (10YR 6/3), yellowish brown (10YR 5/8), and red (2.5YR 5/8) sandy loam that has pockets of sandy clay loam; massive; friable; very strongly acid.

Range in Characteristics

Thickness of solum: 30 to 60 inches
Content of rock fragments: 0 to 2 percent in the A, E, and B horizons and 0 to 25 percent in the C horizon
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to very strongly acid in the upper part of the solum, except where surface layers have been limed; slightly acid to extremely acid in the lower part

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—2 to 6
Texture—silt loam

E horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam

BA or BE horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—silt loam, fine sandy loam, sandy loam, very fine sandy loam, loam, or sandy clay loam

Bt horizon:
Hue—7.5YR or 2.5Y; horizon may be multicolored in the lower part
Value—4 to 6

Chroma—4 to 8
Texture—sandy clay loam, silty clay loam, clay loam, loam, sandy loam, or silt loam

BC or CB horizon:
Hue—7.5YR or 2.5Y; horizon may be multicolored
Value—4 to 6
Chroma—4 to 8
Mottles—shades of red, yellow, or brown
Texture—sandy loam, fine sandy loam, very fine sandy loam, or sandy clay loam

C or 2C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—2 to 8
Texture (fine-earth fraction)—sand, loamy sand, loamy fine sand, or sandy loam

Tarrus Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Landscape: Piedmont uplands
Landform: Ridges
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from argillite and other fine-grained metamorphic rocks in the Carolina Slate Belt
Slope range: 2 to 45 percent
Classification: Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Tarrus silt loam in an area of Badin-Tarrus complex, 2 to 8 percent slopes; 0.9 mile east of the intersection of Secondary Roads 1181 and 1105, about 500 feet north of the intersection of Secondary Road 1105 and a logging road, 30 feet west of the logging road; Eleazer USGS topographic quadrangle; lat. 35 degrees 31 minutes 40 seconds N. and long. 79 degrees 59 minutes 46 seconds W.

A—0 to 6 inches; reddish yellow (7.5YR 6/6) silt loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; clear smooth boundary.
Bt1—6 to 20 inches; red (2.5YR 5/8) silty clay; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; common distinct clay films on faces of peds; few fine roots; very strongly acid; gradual wavy boundary.
Bt2—20 to 44 inches; red (2.5YR 5/8) clay; common medium prominent brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
Cr—44 to 62 inches; weathered, moderately fractured argillite that can be dug with difficulty with a spade.

Range in Characteristics

Thickness of solum: 30 to 50 inches
Content and size of rock fragments: 0 to 40 percent throughout the profile; gravel and channers

Depth to bedrock: 40 to 60 inches to soft bedrock (fig. 17); more than 60 inches to hard bedrock
Reaction: Very strongly acid or strongly acid, except where surface layers have been limed

A or Ap horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—2 to 8
Texture (fine-earth fraction)—silt loam

E horizon (if it occurs):
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 6
Texture (fine-earth fraction)—loam, silt loam, or fine sandy loam

BE horizon (if it occurs):
Hue—2.5YR to 10YR

Figure 17.—Profile of a Tarrus soil. Tarrus soils formed from rocks within the Carolina Slate Belt. Depth to soft bedrock ranges from 40 to 60 inches.

Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, silt loam, clay loam, or silty clay loam

Bt horizon:
Hue—10R or 2.5YR
Value—4 or 5
Chroma—6 or 8
Mottles—shades of white, red, brown, or yellow
Texture (fine-earth fraction)—silty clay loam, clay loam, silty clay, or clay

BC horizon (if it occurs):
Hue—10R to 5YR
Value—4 to 6
Chroma—4 to 8
Mottles—shades of yellow, red, or brown
Texture (fine-earth fraction)—clay loam, silty clay loam, silty clay, or clay

C horizon (if it occurs):
Hue—10R to 5YR
Value—4 to 6
Chroma—4 to 8
Mottles—shades of white, yellow, red, or brown
Texture (fine-earth fraction)—silt loam, loam, clay loam, silty clay loam, silty clay, or clay saprolite

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured argillite and other fine-grained metamorphic rocks in the Carolina Slate Belt

Udorthents

Udorthents consist of areas where the layering of the natural soil has been destroyed by earthmoving equipment. Such activities as scraping, backfilling, trenching, and excavating have so altered the characteristics of the soil that a soil series can no longer be identified.

The excavated areas mainly are borrow pits from which the soil has been removed and used as foundation material for roads or buildings. The fill areas include sites where at least 20 inches of loamy, earthy fill material covers the natural soil; landfills; building sites; industrial sites; and playgrounds. They occur in any landform position and are well drained or moderately well drained.

Typical Pedon

A typical pedon is not given because of the variability of these soils. Areas commonly have soil material 2 to 20 feet thick. Some areas, however, have soil material more than 50 feet thick. Landfill areas contain layers of nonsoil material covered by 2 or 3 feet of soil material.

Range in Characteristics

Color: Variable; includes shades of red, yellow, and brown
Texture: Variable; includes loam, sandy loam, sandy clay loam, clay loam, and clay
Reaction: Ranging from extremely acid to moderately alkaline, in areas where industrial waste having a high lime content has been deposited

Vance Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Landscape: Piedmont uplands
Landform: Broad to narrow ridges and hillslopes
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from felsic high-grade metamorphic or igneous rocks
Slope range: 2 to 15 percent
Classification: Fine, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Vance sandy loam, 2 to 8 percent slopes; 3.2 miles south of the intersection of U.S. Highway 64 and Secondary Road 2626, about 100 feet south of the intersection of Secondary Roads 2626 and 2642, in a field; Coleridge USGS topographic quadrangle; lat. 35 degrees 42 minutes 13 seconds N. and long. 79 degrees 36 minutes 25 seconds W.

Ap—0 to 4 inches; yellowish brown (10YR 5/6) sandy loam; weak medium granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.
Bt1—4 to 20 inches; strong brown (7.5YR 5/8) clay; common medium prominent red (2.5YR 4/8) mottles; moderate medium angular blocky structure; very firm; sticky, plastic; many prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.
Bt2—20 to 25 inches; strong brown (7.5YR 5/8) clay; common medium prominent red (2.5YR 4/8) and few fine distinct pink (7.5YR 7/4) mottles; moderate medium angular blocky structure; very firm; sticky, plastic; many prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.
BC—25 to 30 inches; strong brown (7.5YR 5/8) sandy clay loam; common medium prominent red (2.5YR 4/8) mottles; weak fine subangular blocky structure; slightly sticky, slightly plastic; few distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.
C—30 to 60 inches; multicolored sandy loam saprolite; massive; friable; very strongly acid.

Range in Characteristics

Thickness of solum: 24 to 40 inches
Content of rock fragments: 0 to 35 percent in the A and E horizons and 0 to 10 percent in the B horizon
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to very strongly acid, except where surface layers have been limed

A or Ap horizon:
Hue—10YR to 2.5Y
Value—3 to 6
Chroma—2 to 6
Texture (fine-earth fraction)—sandy loam

E horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 6
Texture (fine-earth fraction)—fine sandy loam, sandy loam, or coarse sandy loam

BA or BE horizon (if it occurs):
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles—shades of red, brown, or yellow
Texture (fine-earth fraction)—clay loam or sandy clay loam

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles—shades of brown, yellow, or red; the lower part of horion may have mottles with low chroma
Texture—clay, sandy clay loam, or clay loam

BC horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles—shades of brown, yellow, or red; mottles with low chroma may occur
Texture—clay loam, sandy clay loam, clay, sandy clay, or loam

C horizon:
Color—multicolored in shades of red, brown, yellow, gray, and white
Texture—clay loam, sandy clay loam, loam, or sandy loam saprolite

Wehadkee Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Landscape: Piedmont river and stream valleys
Landform: Flood plain
Landform position: Slightly concave or convex slopes
Parent material: Recent alluvium
Slope range: 0 to 2 percent
Classification: Fine-loamy, mixed, active, nonacid, thermic Fluvaquentic Endoaquepts

Typical Pedon

Wehadkee silt loam in an area of Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded; 1.6 miles northwest of the intersection of U.S. Highway 421 and N.C. Highway 49, about 600 feet south of U.S. Highway 421, in a pasture; Liberty USGS topographic quadrangle; lat. 35 degrees 51 minutes 42 seconds N. and long. 79 degrees 37 minutes 28 seconds W.

Ap—0 to 6 inches; olive brown (2.5Y 4/4) silt loam; weak fine granular structure; very friable; few fine and medium roots; neutral; clear smooth boundary.
Bg1—6 to 20 inches; olive gray (5Y 5/2) silt loam; weak medium subangular blocky structure; friable; common medium prominent yellowish red (5YR 4/6) soft masses of iron accumulation; slightly acid; gradual wavy boundary.
Bg2—20 to 25 inches; olive gray (5Y 5/2) silt loam; weak medium subangular blocky structure; friable; common coarse prominent light olive brown (2.5Y 5/4) masses of iron accumulation; slightly acid; gradual wavy boundary.
C1—25 to 35 inches; olive gray (5Y 5/2) very fine sandy loam; massive; friable; neutral; gradual wavy boundary.

C2—35 to 60 inches; gray (5Y 5/1) very fine sandy loam; massive; friable; common coarse prominent olive brown (2.5Y 5/4) masses of iron accumulation; neutral.

Range in Characteristics

Thickness of solum: 20 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 5 percent throughout the profile
Reaction: Very strongly acid to neutral, except where surface layers have been limed

A or Ap horizon:
Hue—10YR or 2.5Y or neutral
Value—3 to 6
Chroma—0 to 4
Texture—silt loam

Bg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—sandy clay loam, silt loam, loam, clay loam, or silty clay loam
Redoximorphic features—masses of iron accumulation in shades of red, yellow, or brown

Cg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture—sandy loam, loam, or silt loam or stratified layers of sandy clay loam, clay loam, silty clay loam, loamy sand, sand, and gravel
Redoximorphic features—masses of iron accumulation in shades of red, yellow, or brown

Wilkes Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
Landscape: Piedmont uplands
Landform: Ridges and hillslopes
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from mafic intrusive rocks
Slope range: 8 to 45 percent
Classification: Loamy, mixed, active, thermic, shallow Typic Hapludalfs

Typical Pedon

Wilkes loam in an area of Wilkes-Poindexter-Wynott complex, 8 to 15 percent slopes; 0.1 mile south of the intersection of Secondary Roads 1926 and 1933, about 1,000 feet northeast of Secondary Road 1926 behind WPTF radio tower, in a field; Pleasant Garden USGS topographic quadrangle; lat. 35 degrees 52 minutes 56 seconds N. and long. 79 degrees 50 minutes 45 seconds W.

Ap—0 to 6 inches; dark yellowish brown (10YR 3/4) loam; weak fine granular structure; very friable; few fine roots; moderately acid; clear smooth boundary.

Bt—6 to 12 inches; strong brown (7.5YR 6/6) sandy clay loam; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; few distinct clay films on faces of peds; slightly acid; gradual wavy boundary.
C—12 to 17 inches; sandy loam saprolite that is mottled in shades of green, black, white, and brown; massive; neutral; abrupt smooth boundary.
Cr—17 to 45 inches; weathered, moderately fractured diabase that can be dug with difficulty with a spade.
R—45 inches; unweathered, slightly fractured diabase.

Range in Characteristics

Thickness of solum: 10 to 20 inches
Depth to bedrock: 20 to 40 inches to soft bedrock (fig. 18); 40 to more than 60 inches to hard bedrock
Content of rock fragments: 0 to 50 percent in the A horizon and 0 to 35 percent in the B horizon
Reaction: Strongly acid to slightly acid in the upper horizons, except where surface layers have been limed; moderately acid to mildly alkaline in the lower horizons

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 6
Texture (fine-earth fraction)—loam

E horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 4
Texture (fine-earth fraction)—loam, fine sandy loam, or sandy loam

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6

Figure 18.—Profile of a Wilkes soil. Wilkes soils have soft bedrock at a depth of 20 to 40 inches. They formed from mafic intrusive rocks.

Chroma—4 to 8
Mottles (if they occur)—shades of black, green, gray, or white
Texture (fine-earth fraction)—loam, sandy clay loam, clay loam, or clay

C horizon:
Color—mottled in shades of brown, green, black, gray, or white
Texture—sandy loam, fine sandy loam, or loam saprolite

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured mafic intrusive rock

R layer:
Type of bedrock—unweathered, very slightly fractured to highly fractured mafic intrusive rock

Wynott Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow and slow
Landscape: Piedmont uplands
Landform: Ridges and hillslopes
Landform position: Convex summits and side slopes
Parent material: Residuum weathered from mafic intrusive rocks
Slope range: 2 to 45 percent
Classification: Fine, mixed, active, thermic Typic Hapludalfs

Typical Pedon

Wynott sandy loam in an area of Wynott-Enon complex, 2 to 8 percent slopes; 0.4 mile east of the intersection of Secondary Roads 1547 and 1545, about 75 feet north of Secondary Road 1545, in woods; Glenola USGS topographic quadrangle; lat. 35 degrees 50 minutes 12 seconds N. and long. 79 degrees 58 minutes 15 seconds W.

A—0 to 4 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many large roots; very strongly acid; clear smooth boundary.
E—4 to 7 inches; light olive brown (2.5Y 5/4) sandy loam; weak fine granular structure; very friable; many large and medium roots; strongly acid; clear smooth boundary.
EB—7 to 14 inches; light olive brown (2.5Y 5/6) loam; few fine distinct light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; common medium roots; strongly acid; clear smooth boundary.
Btss—14 to 24 inches; yellowish brown (10YR 5/8) clay; strong medium subangular blocky structure; very firm; sticky, plastic; few fine and medium roots; common fine prominent yellow (2.5Y 7/8) minerals; common prominent clay films on faces of peds; common distinct black (10YR 2/1) stains along root channels; strongly acid; gradual wavy boundary.
BC—24 to 28 inches; dark yellowish brown (10YR 4/6) sandy clay loam that has seams of clay; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; few faint clay films on faces of peds; strongly acid; abrupt smooth boundary.
Cr—28 to 60 inches; yellow (2.5Y 7/8), black (10YR 2/1), white (10YR 8/1), and brown (10YR 5/3) weathered diabase; can be dug with difficulty with a spade.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Content of rock fragments: 0 to 35 percent in the A and E horizons and 0 to 40 percent in the B and C horizons

Depth to bedrock: 20 to 40 inches to soft bedrock (fig. 19); 40 to more than 60 inches to hard bedrock
Reaction: Very strongly acid to slightly acid throughout the profile, except where surface layers have been limed

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam

E horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam, or silt loam

Figure 19.—Profile of a Wynott soil. Wynott soils formed from mafic intrusive rocks. They have soft bedrock at a depth of 20 to 40 inches.

BE or EB horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Mottles—shades of brown or yellow
Texture (fine-earth fraction)—loam, silt loam, sandy loam, sandy clay loam, clay loam, or silty clay loam

Btss horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles—shades of brown, yellow, or black
Texture (fine-earth fraction)—clay loam, silty clay, sandy clay, or clay

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Mottles (if they occur)—shades of brown, yellow, black, or white
Texture (fine-earth fraction)—sandy clay, sandy clay loam, clay loam, or loam

C horizon (if it occurs):
Color—mottled in shades of brown, yellow, black, or white
Texture—variable; commonly sandy loam, loam, or silt loam saprolite

Cr layer:
Type of bedrock—weathered, slightly fractured to highly fractured mafic intrusive rock

R layer (if it occurs):
Type of bedrock—unweathered, very slightly fractured to highly fractured mafic intrusive rock

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in Randolph County. It also discusses the processes of horizon differentiation and the geology of the survey area.

Factors of Soil Formation

Soils are formed by processes of the environment acting upon geologic agents, such as metamorphic, igneous, and sedimentary rocks, and fluvial stream sediments. The characteristics of a soil are determined by the combined influence of parent material, climate, plant and animal life, relief, and time. These five factors are responsible for the profile development and chemical properties that differentiate soils *(4)*.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. In Randolph County, parent material is a major factor in determining what kind of soil forms and can be correlated to some degree to geologic formations. The general soil map can be used as an approximate guide to the geology of the county.

The Mecklenburg-Wynott-Enon general soil map unit formed in materials weathered from intermingled areas of intermediate and mafic igneous and metamorphic rocks, such as diorite, diabase, gabbro, hornblende schist, and hornblende gneiss. The Vance-Cecil-Appling general soil map unit formed in materials weathered from felsic igneous and metamorphic rocks, such as granite, biotite gneiss, and porphyritic granite. The Badin-Tarrus, Georgeville, and Callison-Lignum-Goldston general soil map units formed in materials weathered from rocks of the Carolina Slate Belt, such as schist, phyllite, mudstone, siltstone, and riolite. The Riverview-Chewacla general soil map unit formed in materials derived from recent alluvium.

Parent material is largely responsible for the chemical and mineralogical composition of soils and for the major differences among the soils of the county. Major differences in parent material, such as differences in texture, can be observed in the field. Less distinct differences, such as differences in mineralogical composition, can be determined only by careful laboratory analysis.

Climate

Climate, particularly precipitation and temperature, affects the physical, chemical, and biological relationships in the soil. It influences the rate at which rocks weather and organic matter decomposes. The amount of leaching in a soil is related to the amount of rainfall and the movement of water through the soil. The effects of climate also control the kinds of plants and animals living in and on the soil. Temperature influences the kind and growth of organisms and the speed of chemical and physical reactions in the soil.

Randolph County has a warm, humid climate. It ranges in elevation from about 350 to 1,200 feet above sea level. The climate favors rapid chemical processes, which

result in the decomposition of organic matter and the weathering of rocks. The effects of climate are reflected in the soils of the county. Mild temperatures throughout the year and abundant rainfall have resulted in the depletion of organic matter and considerable leaching of soluble bases. Because variations in the climate of the county are small, climate has probably not caused major local differences among soils. Climate has mainly affected the formation of soils in Randolph County by altering the parent material through changes in temperature and in the amount of precipitation and through influences on plant and animal life.

Plant and Animal Life

Plants and animals influence the formation and differentiation of soil horizons. The type and number of organisms in and on the soil are determined in part by climate and in part by the nature of the soil material, relief, and the age of the soil. Bacteria, fungi, and other micro-organisms aid in the weathering of rocks and in the decomposition of organic matter. The plants and animals that live on a soil are the primary source of organic material.

Plants largely determine the kinds and amounts of organic matter that are added to a soil under normal conditions and the way in which the organic matter is added. They also are important for the changes of base status and for the leaching process of a soil.

Animals convert complex compounds into simpler forms, add organic matter to the soil, and modify certain chemical and physical properties of soil. In Randolph County most of the organic material accumulates on the surface. It is acted upon by micro-organisms, fungi, earthworms, and other forms of life and by direct chemical reaction. It is mixed with the uppermost mineral part of the soil by the activities of earthworms and other small invertebrates.

Under the native forest of this county, not enough bases are brought to the surface by plants to counteract the effects of leaching. Generally, the soils of the county developed under a hardwood forest. Trees took up elements from the subsoil and added organic matter to the soil by depositing leaves, roots, twigs, and other plant remains on the surface. The material deposited on the surface was acted upon by organisms and underwent chemical reaction.

Organic material decomposes rapidly in the county because of the moderate temperature, the abundant moisture supply, and the character of the organic material. It decays so rapidly that little of it accumulates in the soil.

Relief

Relief causes differences in free drainage, surface runoff, soil temperature, and the extent of geologic erosion. Relief in Randolph County is largely determined by the kind of underlying bedrock, the geology of the area, and the extent that the landscape is dissected by streams.

Relief affects the percolation of water through the profile. Water movement through the profile is important in soil development because it aids chemical reactions and is necessary for leaching.

Slopes in the county range from 0 to 50 percent. The upland soils that have slopes of less than 8 percent generally have deeper, better defined profiles than the steeper soils. Examples are the well developed Mecklenburg, Appling, and Georgeville soils. Relief affects the depth of soils. On some soils that have slopes of 15 percent, geologic erosion removes soil material almost as fast as it forms. As a result, most of the strongly sloping to steep soils have a thin solum. Examples are Goldston and Wilkes soils. These soils are not so deep to saprolite nor so well developed as the less sloping soils.

Relief also affects drainage. For example, a high water table usually occurs in nearly level and gently sloping areas. Callison and Lignum soils on uplands are moderately well drained and somewhat poorly drained because they are gently sloping and water moves through them slowly.

Soils at the lower elevations are less sloping and receive runoff from the adjacent higher areas. This runoff tends to accumulate in the nearly level to slightly concave areas. The somewhat poorly drained Chewacla soils and the poorly drained Wehadkee soils on flood plains are in these areas.

Time

The length of time that soil material has been exposed to the soil-forming processes accounts for some differences between soils. The formation of a well defined profile, however, also depends on other factors. Less time is required for a profile to develop in coarse textured material than in similar but finer textured material, even if the environment is the same for both materials. Less time is required for a profile to develop in an area, such as Randolph County, that is warm and humid and has a dense plant cover than in a cold, dry area that has a sparse plant cover.

Soils vary considerably in age. The length of time that a soil has been forming is generally reflected in the profile. Old soils generally have better defined horizons than young soils. In Randolph County, the effects of time as a soil-forming factor are more apparent in the older soils that are in the broader parts of the uplands. Examples are Georgeville and Cecil soils. These soils have well defined horizons. In contrast, young soils, such as Riverview and Chewacla soils, formed in recent alluvium on flood plains and have not been in place long enough to develop as completely as Georgeville and Cecil soils.

Processes of Horizon Differentiation

One or more soil-forming processes are involved in the formation of soil horizons. These processes are the accumulation of organic matter; the leaching of carbonates and other soluble material; the chemical weathering, mainly by hydrolysis, of primary minerals into silicate clay minerals; the translocation of silicate clay and some silt-sized particles from one horizon to another; and the reduction and transfer of iron.

These processes have been active in the formation of most of the soils in Randolph County. The interaction of the first four processes is indicated by the strongly expressed horizons in Georgeville and Cecil soils. All five processes have probably been active in the formation of the moderately well drained Callison and Helena soils.

Most of the soils in the survey area are acid in the upper layers, unless the surface layer has been limed. Although most of the soils formed in material that has a high content of carbonates, some of the carbonates and the more soluble materials have been leached into the lower layers.

The translocation of clay minerals is an important process in the development of many soils in the survey area. As clay minerals are removed from the A horizon, they accumulate as clay films on the faces of peds, in pores, and in root channels in the B horizon.

As silicate clay forms from primary minerals, some iron is commonly released as hydrated oxides. These oxides are generally red. Even if they occur in small amounts, they give the soil material a brownish color. They are largely responsible for the strong brown, yellowish brown, or reddish brown colors that are dominant in the subsoil of many soils in the survey area.

The reduction and transfer of iron has occurred in all of the soils that are not characterized by good natural drainage. This process, known as gleying, is evidenced by a gray matrix color and by iron or clay depletions. Some of the iron may be

reoxidized and segregated and thus form yellow, brown, red, or other brightly colored masses of iron accumulation in an essentially gray matrix in the subsoil. Nodules or concretions of iron or manganese also commonly form as a result of this process. Soil features associated with chemically reduced iron are referred to as redoximorphic features *(19)*.

Geology and Soils

The soils of Randolph County formed from felsic, intermediate, and mafic crystalline rocks or from fine-grained metamorphic rocks. The crystalline rocks are primarily in the northern part of the county. The fine-grained metamorphic rocks, collectively referred to as Carolina slate, are in the southern part of the county. The boundary between these primary geologic formations extends from Archdale to Liberty with a few isolated areas scattered throughout the county.

The felsic rocks are mostly granite, gneiss, and schist. Soils that formed in material weathered from these rocks generally are acid. Vance, Cecil, and Appling soils are the major soils of this type. The mafic and intermediate rocks are mostly gabbro, diorite, granodiorite, quartz diorite, and quartz monzonite. Soils that formed in material weathered from these rocks are acid to mildly alkaline. Mecklenburg, Wynott, Enon, and Helena soils are the major soils of this type. The fine-grained metamorphic rocks are mostly felsic volcanic, argillite, rhyolite, and volcaniclastic-epiclastic. Soils that formed in material weathered from these rocks generally are acid and are characterized by a high content of silt. Georgeville, Badin, Tarrus, Callison, and Lignum soils are the major soils of this type.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces. Generally, cool aspects are north- to east-facing and warm aspects are south- to west-facing.

Atterberg limits. Atterberg limits are measured for soil materials passing the No. 40 sieve. They include the liquid limit (LL), which is the moisture content at which the soil passes from a plastic to a liquid state, and the plasticity index (PI), which is the water content corresponding to an arbitrary limit between the plastic and semisolid states of consistency of a soil.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Basic rock. An igneous rock composed dominantly of dark minerals. The minerals of this rock are comparatively low in silica and rich in bases, such as amphiboles, pyroxenes, biotite, and olivine.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Borrow area. A small area (usually less than 3 acres in size) where soil materials have been removed. These areas support few or no plants without major reclamation.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Bouldery or very bouldery spot. A small area (usually less than 2 acres in size) of bouldery or very bouldery soils within a delineation of nonbouldery soils.

Broad-based dips. Short sections of access road having a reverse grade that intercept storm water. The dips are spaced about 200 feet apart and are designed to divert water away from stream crossings or steep grades.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clayey. A general textural term that includes sandy clay, silty clay, and clay. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) containing 35 percent or more clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse-loamy. According to family level criteria in the soil taxonomic system, soil containing less than 18 percent, by weight, clay and 15 percent or more fine sand or coarser material.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Crust. A thin, hard layer of soil material that forms on the surface of cultivated areas as the result of fine soil material settling out of ponding.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Delineation. The process of drawing or plotting features on a map with lines and symbols.

Depression (depressional area). A portion of land surrounded on all sides by higher land. These areas generally do not have outlets for drainage.

Depth class. Refers to the depth to a root-restricting layer. Unless otherwise stated, this layer is understood to be consolidated bedrock. The depth classes in this survey are:

Very shallow	less than 10 inches
Shallow	10 to 20 inches
Moderately deep	20 to 40 inches
Deep	40 to 60 inches
Very deep	more than 60 inches

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diabase. A rock of basaltic composition consisting primarily of labradorite and pyroxene and characterized by ophitic texture.

Dike. A long, narrow cross-cutting mass of igneous rock that extends to or crops out on the land surface.

Diorite. A coarse-grained igneous rock with the composition of andesite (no quartz or orthoclase). It is composed of about 75 percent plagioclase feldspars with the balance being ferromagnesian silicates.

Dispersion (soils). The breakup of compound particles, such as soil aggregates or saprolite, into single grains, resulting in a highly erosive condition. This phenomenon results from the failure of grains to adhere or bond to one another and generally is associated with a high water content in soil containing high levels of sodium.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A narrow, gently sloping to very steep, concave colluvial area along an intermittent or perennial stream.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Eroded (soil phase). Because of erosion, the soil has lost an average of 25 to 75 percent of the original A horizon or the uppermost 2 to 6 inches if the original A horizon was less than 8 inches thick.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building

up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion classes. Classes based on estimates of past erosion. The classes are as follows:

Class 1.—Soils that have lost some of the original A horizon but on the average less than 25 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most areas, the thickness of the surface layer is within the normal range of variability of the uneroded soil. Class 1 erosion typically is not designated in the name of the map unit or in the map symbol.

Class 2.—Soils that have lost an average of 25 to 75 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most cultivated areas of class 2 erosion, the surface layer consists of a mixture of the original A horizon and material from below. Some areas may have intricate patterns ranging from uneroded spots to spots where all of the original A horizon has been removed.

Class 3.—Soils that have lost an average of 75 percent or more of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). In most cultivated areas of class 3 erosion, material that was below the original A horizon is exposed. The plow layer consists entirely or largely of this material.

Class 4.—Soils that have lost all of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick) plus some or all of the deeper horizons throughout most of the area. The original soil can be identified only in spots. Some areas may be smooth, but most have an intricate pattern of gullies.

Erosion hazard. A term describing the potential for future erosion, inherent in the soil itself, in inadequately protected areas. The following definitions are based on estimated annual soil loss in metric tons per hectare (values determined by the Universal Soil Loss Equation assuming bare soil conditions and using rainfall and climate factors for North Carolina):

0 tons per hectare	none
Less than 2.5 tons per hectare	slight
2.5 to 10 tons per hectare	moderate
10 to 25 tons per hectare	severe
More than 25 tons per hectare	very severe

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fast intake (in tables). The rapid movement of water into the soil.

Felsic rock. A general term for light-colored igneous rock and some metamorphic crystalline rock that have an abundance of quartz, feldspars, feldspathoids, and muscovite mica.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field border. A strip of perennial vegetation (trees, shrubs, or herbaceous plants) established on the edge of a field to control erosion, provide travel lanes for farm machinery, control competition from adjacent woodland, or provide food and cover for wildlife.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine-loamy. According to family level criteria in the soil taxonomic system, soil containing 18 to 35 percent, by weight, clay and 15 percent or more fine sand or coarser material.

Fine textured soil. Sandy clay, silty clay, or clay.

Flooding. The temporary covering of the soil surface by flowing water from any source, such as overflowing streams, runoff from adjacent or surrounding slopes, and inflow from high tides. The frequency of flooding generally is expressed as none, rare, occasional, or frequent. *None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). The duration of flooding is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month).

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The inclined surface at the base of a hill.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors which differentiate it from other stands.

Geomorphic surface. A part of the surface of the land that represents an episode of landscape development and consists of one or more landforms. It is a mappable part of the land surface that is defined in terms of morphology (relief, slope, aspect, etc.); origin (erosional, constructional, etc.); age (absolute or relative); and stability of component landforms.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Gneiss. A coarse-grained metamorphic rock in which bands rich in granular minerals alternate with bands that are predominantly schistose minerals. It is commonly formed by the metamorphism of granite.

Granite. A coarse-grained igneous rock dominated by light-colored minerals, consisting of about 50 percent orthoclase and 25 percent quartz with the balance being plagioclase feldspars and ferromagnesian silicates. Granites and granodiorites comprise 95 percent of all intrusive rocks.

Granodiorite. A plutonic rock roughly intermediate in composition between granite and diorite.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot. A small area of soils (usually less than 1 acre in size) having a gravelly, very gravelly, or extremely gravelly surface layer within a delineation of nongravelly soils.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A very small channel with steep sides cut by running water and through which water ordinarily runs only after rainfall, icemelt, or snowmelt. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. Areas identified on the detailed soil maps by a special symbol typically are less than 2 acres in size.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Head slope. A concave, horseshoe-shaped slope on a mountain landscape at the head of an intermittent drainageway.

High-grade metamorphic rocks. Highly metamorphosed rocks, such as gneiss and schist.

High-residue crops. Such crops as small grain and corn that are used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

High stream terrace. A terrace, commonly 20 feet or higher in elevation than the adjacent flood plain, that is no longer subject to flooding.

High water table (seasonal). The highest level of a saturated zone in the soil (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above the surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure;

(3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intermediate rock. Igneous or metamorphic crystalline rock that is intermediate in composition between mafic and felsic rock.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones that have a low content of iron and manganese oxide because of chemical reduction and removal but also have a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kaolinite. An aluminosilicate clay mineral with a 1:1 layer structure; that is, a silicon tetrahedral sheet alternating with an aluminum octahedral sheet. Little or no expansion occurs when water mixes with the clay.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Landform. The description of a given terrain based on position and configuration. Examples are flood plain, stream terrace, fan, mountain slope, and ridge.

Landform position. A particular place within a landform. Examples are summit of a ridge, shoulder of a ridge, nose slope, side slope, backslope, and footslope.

Landscape. A collection of related, natural landforms; usually the land surface which can be seen in a single view.

Land shaping. The practice of scraping higher convex areas into lower concave areas to make the field nearly level and reduce ponding.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy. A general textural term that includes coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, clay loam, and sandy clay loam. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of loamy very fine sand or finer textured material that contains more than 15 percent fine sand or coarser sand and less than 35 percent clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

Low strength. The soil is not strong enough to support loads.

Mafic rock. A dark rock composed predominantly of magnesium silicates. It can contain small amounts of quartz, feldspar, or muscovite mica.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Montmorillonite. An aluminosilicate clay mineral with 2:1 layer structure; that is, two silicon tetrahedral sheets enclosing an aluminum octahedral sheet. Considerable expansion may occur when water mixes with the clay.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil (mottles). Irregular spots of different colors that vary in number and size. They result from impeded drainage and poor aeration or as a result of weathering of geologic material. Redoximorphic features are a type of mottle resulting from conditions of wetness. Lithochromic or lithomorphic mottles are mottles which retain colors of the original geologic materials. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau), and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Native pasture. Pasture that has seeded naturally in native grasses. It is on slopes too steep to manage with modern machinery.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nose slope. The downward-sloping convex end of a main ridge or spur ridge.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Overstory. The portion of the trees in a forest stand forming the upper crown cover.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in

published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piedmont. The physiographic region of central North Carolina characterized by rolling landscapes formed from the weathering of residual rock material.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pits, quarry (mine or quarry). A small borrow area or pit (usually less than 5 acres in size) where soil, gravel, or stone has been removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Porphyritic. A textural term for igneous rocks in which larger crystals, called phenocrysts, are set in a finer groundmass. The groundmass may be crystalline or glassy, or both.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate weather conditions and soil moisture conditions and at the proper time of day.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3

Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. They indicate chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. They indicate the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation. Descriptive terms for concentrations and depletions are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Reforestation. The process in which tree seedlings are planted or become naturally established in an area that was once forested.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Ridge. A long, narrow elevation of the land surface, usually having a sharp crest and steep sides.

Ridge nose. The downward-sloping convex terminal point of a main ridge or a spur ridge.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Rippable bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 drawbar horsepower rating.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock outcrop. An area of exposed bedrock in a map unit that has less than 0.1 percent exposed bedrock. Areas identified on the detailed soil maps by a special symbol typically are less than 2 acres in size.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Runoff class (surface). Refers to the rate at which water flows away from the soil over the surface without infiltrating. Six classes of rate of runoff are recognized:

Ponded.—Little of the precipitation and water that runs onto the soil escapes as runoff, and free water stands on the surface for significant periods. The amount of water that is removed from ponded areas by movement through the soil, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs on level and nearly level soils in depressions. The water depth may fluctuate greatly.

Very slow.—Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soil. Most of the water passes through the soil, is used by plants, or evaporates. The soils are commonly level or nearly level or are very porous.

Slow.—Surface water flows away so slowly that free water stands on the surface for moderate periods or enters the soil rapidly. Most of the water passes through the soil, is used by plants, or evaporates. The soils are nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.

Medium.—Surface water flows away so rapidly that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils are nearly level to gently sloping and absorb precipitation at a moderate rate, or they are steeper but absorb water rapidly.

Rapid.—Surface water flows away so rapidly that the period of concentration is brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly moderately steep or steep and have moderate or slow rates of absorption.

Very rapid.—Surface water flows away so rapidly that the period of concentration is very brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly steep or very steep and absorb precipitation slowly.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandy. A general textural term that includes coarse sand, sand, fine sand, very fine sand, loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of sand or loamy sand that contains less than 50 percent very fine sand, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

Schist. A metamorphic rock that is dominantly fibrous or platy minerals. It has schistose cleavage and is a product of regional metamorphism.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sesquioxides. A general term for oxides and hydroxides of iron and aluminum.

Short, steep slope. An area of soils that are at least two slope classes steeper than the named soils in the surrounding map unit. Areas identified on the detailed soil maps by a special symbol typically are long, narrow bands that are less than 2 acres in size. (See Slope.)

Shoulder. The landscape position, parallel to the summit, that is directly below the ridgetop and directly above the side slope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. The landscape position that is directly below the shoulder and directly above the toe slope. It makes up most of the mountainside or hillside.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Silty. A general texture term that includes silt, silt loam, and silty clay loam.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skidding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most systems involve pulling the trees with wire cables attached to a bulldozer or a rubber-tired tractor. Generally, felled trees are skidded or pulled with one end lifted to reduce friction and soil disturbance.

Skid trails. The paths left by skidding logs and the bulldozer or tractor used to pull them.

Slate. A fine-grained metamorphic rock with well developed slaty cleavage. Formed by the low-grade regional metamorphism of shale.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Very gently sloping	2 to 4 percent
Gently sloping	2 to 6 percent
Moderately sloping	2 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 45 percent
Very steep	45 percent and higher

Classes for complex slopes are as follows:

Level	0 to 2 percent
Nearly level	0 to 3 percent
Gently undulating	2 to 8 percent
Undulating	8 to 15 percent
Gently rolling	4 to 15 percent
Hilly	10 to 30 percent
Steep	25 to 45 percent
Very steep	45 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil compaction. An alteration of soil structure that ultimately can affect the biological and chemical properties of the soil. Compaction decreases the extent of voids and increases bulk density.

Soil map unit. A kind of soil or miscellaneous area or a combination of two or more soils or one or more soils and one or more miscellaneous areas that can be shown at the scale of mapping for the defined purposes and objectives of the soil

survey. Soil map units generally are designed to reflect significant differences in use and management among the soils of a survey area.

Soil sample site (map symbol). The location of a typifying pedon in the survey area.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Soil strength. The load-supporting capacity of a soil at specific moisture and density conditions.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stand density. The degree to which an area is covered with living trees. It is usually expressed in units of basal areas per acre, number of trees per acre, or the percentage of ground covered by the tree canopy as viewed from above.

Stone line. A concentration of rock fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony or very stony spot. A small area (usually less than 2 acres in size) of stony or very stony soils within a delineation of nonstony soils.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsidence. A pronounced reduction in volume in some drained soils because of the removal of water, shrinkage of organic material, and the oxidation of organic compounds. Generally associated with soils that have a high content of organic matter.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Suitability ratings. Ratings for the degree of suitability of soils for pasture, crops, woodland, and engineering uses. The ratings and the general criteria used for their selection are as follows:

Well suited.—The intended use may be initiated and maintained by using only the standard materials and methods typically required for that use. Good results can be expected.

Suited or moderately suited.—The limitations affecting the intended use make special planning, design, or maintenance necessary.

Poorly suited.—The intended use is difficult or costly to initiate and maintain because of certain soil properties, such as steep slopes, a severe hazard of erosion, a high water table, low fertility, and a hazard of flooding. Major soil reclamation, special design, or intensive management practices are needed.

Very poorly suited, not suited, or unsuited.—The intended use is very difficult or costly to initiate and maintain, and thus it generally should not be undertaken.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe lope. The outermost inclined surface at the base of a hill; part of a footslope.

Topography. The relative positions and elevations of the natural or manmade features of an area that describe the configuration of its surface.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Underlying material. Technically the C horizon; the part of the soil below the biologically altered A and B horizons.

Understory. The trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portions of adjacent trees and other woody growth.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and to divert water off and away from the road surface. Water bars can be easily driven over if they are constructed properly.

Water table (apparent). A thick zone of free water in the soil. The apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table (perched). A saturated zone of water in the soil standing above an unsaturated zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wetness. A general term applied to soils that hold water at or near the surface long enough to be a common management problem.

Wet spot. A small area (usually less than 3 acres in size) of soils that are at least two drainage classes wetter than the delineated soil. Wet spot symbols are not placed within areas mapped as poorly drained or very poorly drained soils.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1933-93 at Asheboro, North Carolina)

Month	Temperature						Precipitation			
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more
	°F	°F	°F	°F	°F	Units	In	In	In	
January-----	51.2	31.4	41.3	74	7	144	3.68	2.06	5.12	6
February----	54.7	32.9	43.8	77	11	171	3.70	2.08	5.14	6
March-------	63.4	39.8	51.6	85	19	369	4.08	2.67	5.36	7
April-------	73.1	48.0	60.6	90	28	606	3.47	2.02	4.77	6
May---------	79.8	56.3	68.1	92	38	872	3.91	1.94	5.62	6
June--------	86.0	64.0	75.0	98	48	1,050	3.92	1.94	5.65	6
July--------	88.5	67.6	78.0	99	55	1,176	5.00	2.71	7.01	8
August------	87.3	66.7	77.0	98	53	1,142	4.87	2.26	7.11	6
September---	81.8	60.8	71.3	95	42	924	3.64	1.18	5.65	4
October-----	72.6	49.3	60.9	88	29	650	3.20	1.20	4.87	4
November----	62.9	40.5	51.7	81	19	361	2.87	1.38	4.17	5
December----	53.1	33.1	43.1	73	10	171	3.19	1.75	4.55	5
Yearly:										
Average---	71.2	49.2	60.2	---	---	---	---	---	---	---
Extreme---	105	-8	---	100	5	---	---	---	---	---
Total-----	---	---	---	---	---	7,638	45.53	39.15	51.30	69

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1933-93 at Asheboro, North Carolina)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 28	Apr. 12	Apr. 18
2 years in 10 later than--	Mar. 20	Apr. 6	Apr. 13
5 years in 10 later than--	Mar. 5	Mar. 24	Apr. 4
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 7	Oct. 30	Oct. 17
2 years in 10 earlier than--	Nov. 13	Nov. 4	Oct. 22
5 years in 10 earlier than--	Nov. 25	Nov. 13	Nov. 1

Table 3.—Growing Season

(Recorded in the period 1933-93 at Asheboro, North Carolina)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	227	205	190
8 years in 10	236	214	196
5 years in 10	253	230	210
2 years in 10	269	246	223
1 year in 10	278	255	230

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
ApB	Appling sandy loam, 2 to 6 percent slopes	3,561	0.7
ApC	Appling sandy loam, 6 to 10 percent slopes	1,932	0.4
BaB	Badin-Tarrus complex, 2 to 8 percent slopes	12,492	2.5
BaC	Badin-Tarrus complex, 8 to 15 percent slopes	22,867	4.5
BaD	Badin-Tarrus complex, 15 to 25 percent slopes	40,642	8.0
BaE	Badin-Tarrus complex, 25 to 45 percent slopes	7,552	1.5
BtB2	Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded	30,549	6.0
BtC2	Badin-Tarrus complex, 8 to 15 percent slopes, moderately eroded	27,181	5.4
CaB	Callison-Lignum complex, 2 to 6 percent slopes	18,468	3.7
CbC	Callison-Misenheimer complex, 6 to 10 percent slopes	17,085	3.4
CcB	Cecil sandy loam, 2 to 8 percent slopes	1,403	0.3
CcC	Cecil sandy loam, 8 to 15 percent slopes	2,857	0.6
CeB2	Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded	6,264	1.2
CfA	Chenneby silt loam, 0 to 2 percent slopes, frequently flooded	385	*
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded	9,256	1.8
CmA	Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded	1,282	0.3
CnB2	Coronaca clay loam, 2 to 8 percent slopes, moderately eroded	1,785	0.4
CnC2	Coronaca clay loam, 8 to 15 percent slopes, moderately eroded	483	*
DaB	Davidson loam, 2 to 8 percent slopes	82	*
DoB	Dogue sandy loam, 2 to 6 percent slopes, occasionally flooded	756	0.1
GaB	Georgeville silt loam, 2 to 8 percent slopes	16,706	3.3
GaC	Georgeville silt loam, 8 to 15 percent slopes	24,621	4.9
GbC	Georgeville silt loam, 4 to 15 percent slopes, extremely stony	29,399	5.8
GdE	Georgeville silt loam, 15 to 45 percent slopes, extremely bouldery	22,419	4.4
GeB2	Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded	49,508	9.8
GeC2	Georgeville silty clay loam, 8 to 15 percent slopes, moderately eroded	17,016	3.4
GgB	Georgeville gravelly silt loam, 2 to 8 percent slopes	565	0.1
GgC	Georgeville gravelly silt loam, 8 to 15 percent slopes	219	*
GmC	Georgeville-Urban land complex, 2 to 10 percent slopes	5,283	1.0
GoC	Goldston very channery silt loam, 4 to 15 percent slopes	4,095	0.8
GoE	Goldston very channery silt loam, 15 to 50 percent slopes	3,860	0.8
HeB	Helena sandy loam, 2 to 6 percent slopes	5,835	1.2
HeC	Helena sandy loam, 6 to 10 percent slopes	4,744	0.9
MaC	Mecklenburg loam, 8 to 15 percent slopes	4,237	0.8
MaD	Mecklenburg loam, 15 to 25 percent slopes	2,158	0.4
MeB2	Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded	13,085	2.6
MeC2	Mecklenburg clay loam, 8 to 15 percent slopes, moderately eroded	6,408	1.3
MkC	Mecklenburg-Urban land complex, 2 to 10 percent slopes	589	0.1
PaC	Pacolet fine sandy loam, 8 to 15 percent slopes	2,055	0.4
PaD	Pacolet fine sandy loam, 15 to 30 percent slopes	1,416	0.3
Pt	Pits, quarry	71	*
RnC	Rion loamy sand, 8 to 15 percent slopes	1,007	0.2
RnD	Rion loamy sand, 15 to 25 percent slopes	541	0.1
RvA	Riverview sandy loam, 0 to 2 percent slopes, frequently flooded	6,141	1.2
ShA	Shellbluff silt loam, 0 to 2 percent slopes, ocassionally flooded	390	*
StB	State silt loam, 2 to 6 percent slopes	191	*
Ud	Udorthents, loamy	554	0.1
VaB	Vance sandy loam, 2 to 8 percent slopes	5,948	1.2
VaC	Vance sandy loam, 8 to 15 percent slopes	5,153	1.0
W	Water	3,608	0.7
WpC	Wilkes-Poindexter-Wynott complex, 8 to 15 percent slopes	5,989	1.2
WpE	Wilkes-Poindexter-Wynott complex, 15 to 25 percent slopes	5,123	1.0
WtB	Wynott-Enon complex, 2 to 8 percent slopes	15,190	3.0
WtC	Wynott-Enon complex, 8 to 15 percent slopes	14,915	3.0
WtD	Wynott-Enon complex, 15 to 25 percent slopes	1,936	0.4
WvB2	Wynott-Enon complex, 2 to 8 percent slopes, moderately eroded	5,332	1.1
WvC2	Wynott-Enon complex, 8 to 15 percent slopes, moderately eroded	4,536	0.9
WyC	Wynott-Enon complex, 4 to 15 percent slopes, extremely bouldery	3,322	0.7
WyE	Wynott-Enon complex, 15 to 45 percent slopes, extremely bouldery	1,614	0.3
WzB	Wynott-Wilkes-Poindexter complex, 2 to 8 percent slopes	2,593	0.5
	Total	505,254	100.0

* Less than 0.1 percent.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Oats	Soybeans	Flue-Cured Tobacco	Wheat	Tall fescue
		Bu	Bu	Bu	Lbs	Bu	Tons
ApB------------- Appling	IIe	132	108	54	3,234	64	5.4
ApC------------- Appling	IIIe	117	96	48	2,871	57	4.8
BaB:							
Badin----------	IIe	115	90	43	2,730	52.6	3.8
Tarrus---------	IIe	115	90	43	2,678	53	4.3
BaC:							
Badin----------	IIIe	107	84	40	2,545	49	3.6
Tarrus---------	IIIe	107	84	40	2,500	49	4.0
BaD:							
Badin----------	IVe	84	66	32	1,978	39	3.0
Tarrus---------	IVe	97	76	36	2,267	45	3.6
BaE:							
Badin----------	VIe	---	---	---	---	---	3.0
Tarrus---------	VIe	---	---	---	---	---	3.0
BtB2:							
Badin----------	IIe	103	81	39	2,413	47	3.9
Tarrus---------	IIe	103	81	39	2,413	47	3.9
BtC2:							
Badin----------	IIIe	93	73	35	2,212	43	3.1
Tarrus---------	IIIe	93	73	35	2,173	43	3.5
CaB:							
Callison-------	IIe	103	78	34	1,934	46	4.4
Lignum---------	IIe	120	81	40	1,722	48	4.3
CbC:							
Callison-------	IIIe	90	69	28	1,831	41	3.6
Misenheimer----	IIIe	80	68	29	1,660	39	3.0
CcB------------- Cecil	IIe	120	98	48	3,061	57	4.8
CcC------------- Cecil	IIIe	100	82	40	2,560	48	4.0
CeB2------------ Cecil	IIe	108	88	43	2,758	52	4.3

See footnotes at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Soil name and map symbol	Land capability	Corn	Oats	Soybeans	Flue-cured tobacco	Wheat	Tall fescue
		Bu	Bu	Bu	Lbs	Bu	Tons
CfA: Chenneby	IVw	125	94	40	2,700	55	4.0
ChA: Chewacla	IVw	150	110	55	3,234	65	4.5
CmA:							
Chewacla	IIIw	150	110	55	3,234	65	4.5
Wehadkee	VIw	---	---	---	---	---	---
CnB2: Coronaca	IIe	120	98	43	2,870	57	4.8
CnC2: Coronaca	IIIe	112	91	40	2,679	54	4.5
DaB: Davidson	IIe	134	105	53	3,260	62.2	5.3
DoB: Dogue	IIe	123	100	44	2,744	59	3.9
GaB: Georgeville	IIe	120	98	48	2,870	57	4.8
GaC: Georgeville	IIIe	100	82	40	2,400	48	4.0
GbC: Georgeville	VIs	---	---	---	---	---	---
GdE: Georgeville	VIIs	---	---	---	---	---	---
GeB2: Georgeville	IIe	108	88	43	2,586	52	4.3
GeC2: Georgeville	IIIe	97	79	39	2,328	47	3.9
GgB: Georgeville	IIe	119	97	48	2,850	57	4.8
GgC: Georgeville	IIIe	100	82	40	2,400	48	4.0
GmC*:							
Georgeville	IIIe	---	---	---	---	---	---
Urban land	VIIIs	---	---	---	---	---	---
GoC: Goldston	IVs	71	61	27	2,143	36	3.1
GoE: Goldston	VIIs	---	---	---	---	---	2.5

See footnotes at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Soil name and map symbol	Land capability	Corn	Oats	Soybeans	Flue-cured tobacco	Wheat	Tall fescue
		Bu	Bu	Bu	Lbs	Bu	Tons
HeB------------- Helena	IIe	92	83	39	2,331	49	3.9
HeC------------- Helena	IIIe	87	78	37	2,208	46	3.7
MaC------------- Mecklenburg	IIIe	84	68	32	1,920	40	3.6
MaD------------- Mecklenburg	IVe	74	60	28	1,680	35	3.2
MeB2------------ Mecklenburg	IIe	100	81	38	2,280	48	4.3
MeC2------------ Mecklenburg	IIIe	84	68	32	1,920	40	3.6
MkC*:							
Mecklenburg----	IIIe	---	---	---	---	---	---
Urban land-----	VIIIs	---	---	---	---	---	---
PaC------------- Pacolet	IIIe	98	76	36	2,322	45	4.0
PaD------------- Pacolet	IVe	77	60	28	1,820	35	3.2
Pt*------------- Pits	VIIIs	---	---	---	---	---	---
RnC------------- Rion	IIIe	80	68	28	1,920	40	3.2
RnD------------- Rion	IVe	70	60	25	1,680	35	2.8
RvA------------- Riverview	IIIw	120	94	45	2,7000	55	4.5
ShA------------- Shellbluff	IIw	110	85	40	2,6000	50	4.5
StB------------- State	IIe	123	100	44	2,940	59	3.9
Ud*------------- Udorthents	VIIe	---	---	---	---	---	---
VaB------------- Vance	IIe	100	81	38	2,391	47.8	4.3
VaC------------- Vance	IIIe	94	76	36	2,232	44.6	4.0
W* Water							

See footnotes at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Soil name and map symbol	Land capability	Corn	Oats	Soybeans	Flue-cured tobacco	Wheat	Tall fescue
		Bu	Bu	Bu	Lbs	Bu	Tons
WpC:							
Wilkes----------	VIe	67	56	24	1,597	33	2.9
Poindexter------	IIIe	71	61	25	1,697	36	2.7
Wynott----------	IIIe	79	64	30	1,871	38	3.4
WpE:							
Wilkes----------	VIIe	57	48	21	1,361	28	2.5
Poindexter------	IVe	40	50	22	1,297	30	2.4
Wynott----------	IVe	70	56	26	1,641	33	3.0
WtB:							
Wynott----------	IIe	95	76	35	2,230	45	4.0
Enon------------	IIe	100	81	38	2,296	48	4.3
WtC:							
Wynott----------	IIIe	79	64	30	1,871	38	3.4
Enon------------	IIIe	94	76	36	2,143	45	4.0
WtD:							
Wynott----------	IVe	70	56	26	1,641	33	3.0
Enon------------	IVe	83	67	32	1,886	40	3.5
WvB2:							
Wynott----------	IIe	76	61	28	1,784	36	3.2
Enon------------	IIe	80	65	30	1,837	38	3.4
WvC2:							
Wynott----------	IIIe	63	51	24	1,497	30	2.7
Enon------------	IIIe	75	61	29	1,714	36	3.2
WyC:							
Wynott----------	VIs	---	---	---	---	---	---
Enon------------	VIs	---	---	---	---	---	---
WyE:							
Wynott----------	VIIs	---	---	---	---	---	---
Enon------------	VIIs	---	---	---	---	---	---
WzB:							
Wynott----------	IIe	95	76	35	2,230	45	4.0
Wilkes----------	IVe	76	64	28	1,799	38	3.8
Poindexter------	IIe	77	65	27	1,818	38	2.9

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 6.—Capability Classes and Subclasses

(Miscellaneous areas are excluded. Absence of an entry indicates no acreage)

Class	Total acreage	Major management concerns (Subclass) Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	---	---	---	---	---
II	168,089	167,757	332	---	---
III	152,256	146,267	5,989	---	---
IV	56,981	45,260	8,240	3,481	---
V	---	---	---	---	---
VI	41,611	8,773	449	32,389	---
VII	29,673	2,520	---	27,153	---
VIII	2,357	---	---	2,357	---

Table 7.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
ApB	Appling sandy loam, 2 to 6 percent slopes
CcB	Cecil sandy loam, 2 to 8 percent slopes
CeB2	Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded
CfA	Chenneby silt loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
CnB2	Coronaca clay loam, 2 to 8 percent slopes, moderately eroded
DaB	Davidson loam, 2 to 8 percent slopes
DoB	Dogue sandy loam, 2 to 6 percent slopes, occasionally flooded
GaB	Georgeville silt loam, 2 to 8 percent slopes
GeB2	Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded
GgB	Georgeville gravelly silt loam, 2 to 8 percent slopes
HeB	Helena sandy loam, 2 to 6 percent slopes
MeB2	Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded
RvA	Riverview sandy loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
ShA	Shellbluff silt loam, 0 to 2 percent slopes, occasionally flooded
StB	State silt loam, 2 to 6 percent slopes
VaB	Vance sandy loam, 2 to 8 percent slopes

Table 8.—Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
								cu ft/ha	
ApB, ApC--------Appling	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	84	118	Loblolly pine, shortleaf pine.
						Shortleaf pine------	65	99	
						Virginia pine-------	74	114	
						Scarlet oak---------	74	56	
						White oak-----------	64	47	
						Yellow-poplar-------	88	86	
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						Hickory-------------	---	---	
BaB**, BaC**:									
Badin----------	8D	Slight	Slight	Slight	Moderate	Loblolly pine-------	80	110	Loblolly pine, shortleaf pine.
						Shortleaf pine------	68	106	
						Virginia pine-------	---	---	
						Yellow-poplar-------	---	---	
						White oak-----------	63	46	
						Scarlet oak---------	65	47	
						Chestnut oak--------	66	48	
Tarrus---------	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	78	107	Loblolly pine.
						Northern red oak----	72	54	
						Virginia pine-------	68	105	
						Yellow-poplar-------	83	77	
BaD**:									
Badin----------	8R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	80	110	Loblolly pine, shortleaf pine.
						Shortleaf pine------	68	106	
						Virginia pine-------	---	---	
						Yellow-poplar-------	---	---	
						White oak-----------	63	46	
						Scarlet oak---------	65	47	
						Chestnut oak--------	66	48	
Tarrus---------	8R	Moderate	Moderate	Moderate	Slight	Loblolly pine-------	78	90	Loblolly pine.
						White oak-----------	55	38	
						Chestnut oak--------	55	38	
						Virginia pine-------	58	86	
BaE**:									
Badin----------	8R	Severe	Severe	Slight	Moderate	Loblolly pine-------	80	110	Loblolly pine, shortleaf pine.
						Shortleaf pine------	68	106	
						Virginia pine-------	---	---	
						Yellow-poplar-------	---	---	
						White oak-----------	63	46	
						Scarlet oak---------	65	48	
						Chestnut oak--------	66	48	
Tarrus---------	8R	Severe	Severe	Moderate	Slight	Loblolly pine-------	78	90	Loblolly pine.
						White oak-----------	55	38	
						Chestnut oak--------	55	38	
						Virginia pine-------	58	86	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
								cu ft/ha	
BtB2**, BtC2**:									
Badin----------	6D	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	70	93	Loblolly pine, shortleaf pine.
						Shortleaf pine------	60	88	
						White oak-----------	60	43	
						Scarlet oak---------	60	43	
						Chestnut oak--------	60	43	
						Virginia pine-------	---	---	
Tarrus---------	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	78	107	Loblolly pine.
						Northern red oak----	72	54	
						Virginia pine-------	68	105	
						Yellow-poplar-------	83	77	
CaB**:									
Callison-------	9W	Slight	Slight	Slight	Slight	Loblolly pine-------	87	125	Loblolly pine.
						Red maple-----------	---	---	
						Sweetgum------------	---	---	
						Willow oak----------	---	---	
						Black cherry--------	---	---	
						Hickory-------------	---	---	
Lignum---------	4W	Slight	Slight	Moderate	Slight	Loblolly pine-------	76	103	Loblolly pine.
						Northern red oak----	68	50	
						Virginia pine-------	74	114	
						Shortleaf pine------	66	101	
						Southern red oak----	68	50	
						Red maple-----------	---	---	
						Yellow-poplar-------	---	---	
CbC**:									
Callison-------	9W	Slight	Slight	Slight	Slight	Loblolly pine-------	87	125	Loblolly pine.
						Red maple-----------	---	---	
						Sweetgum------------	---	---	
						Willow oak----------	---	---	
						Black cherry--------	---	---	
						Hickory-------------	---	---	
Misenheimer----	6D	Slight	Moderate	Moderate	Severe	Shortleaf pine------	58	84	Shortleaf pine.
						White oak-----------	59	42	
						Willow oak----------	59	42	
						Sweetgum------------	---	---	
						Red maple-----------	---	---	
						Blackgum------------	---	---	
						Hickory-------------	---	---	
						Post oak------------	---	---	
						Blackjack oak-------	---	---	
CcB, CcC-------- Cecil	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	83	116	Loblolly pine, shortleaf pine.
						Shortleaf pine------	69	108	
						Virginia pine-------	71	110	
						White oak-----------	79	61	
						Northern red oak----	81	63	
						Southern red oak----	79	61	
						Post oak------------	72	54	
						Scarlet oak---------	81	63	
						Sweetgum------------	76	70	
						Yellow-poplar-------	92	73	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Contined

Soil name and map symbol	Ordination symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Volume*	Trees to plant
								cu ft/ha	
CeB2------------ Cecil	7C	Slight	Moderate	Moderate	Slight	Loblolly pine-------	72	96	Loblolly pine, shortleaf pine.
						Shortleaf pine------	63	95	
						Virginia pine-------	65	100	
						White oak-----------	64	47	
						Northern red oak----	---	---	
CfA------------- Chenneby	11W	Slight	Moderate	Moderate	Slight	Loblolly pine-------	100	154	Yellow-poplar, loblolly pine.
						Sweetgum------------	100	138	
						Water oak-----------	100	98	
						Yellow-poplar-------	100	107	
						American sycamore---	100	123	
ChA------------- Chewacla	7W	Slight	Moderate	Slight	Moderate	Yellow-poplar-------	98	98	Yellow-poplar, loblolly pine.
						Loblolly pine-------	95	142	
						Sweetgum------------	97	128	
						Eastern cottonwood--	---	---	
						Green ash-----------	---	---	
						Southern red oak----	---	---	
						Blackgum------------	---	---	
						Red maple-----------	---	---	
						Willow oak----------	---	---	
						American beech------	---	---	
						American sycamore---	---	---	
CmA**:									
Chewacla-------	7W	Slight	Moderate	Slight	Moderate	Yellow-poplar-------	95	98	Yellow-poplar, loblolly pine.
						Loblolly pine-------	95	142	
						Sweetgum------------	97	128	
						Eastern cottonwood--	---	---	
						Green ash-----------	---	---	
						Southern red oak----	---	---	
						Blackgum------------	---	---	
						Red maple-----------	---	---	
						Willow oak----------	---	---	
						American beech------	---	---	
						American sycamore---	---	---	
Wehadkee-------	8W	Slight	Severe	Moderate	Moderate	Yellow-poplar-------	100	107	Yellow-poplar, loblolly pine.
						Sweetgum------------	94	118	
						Loblolly pine-------	93	138	
						Green ash-----------	---	---	
						White ash-----------	---	---	
						American sycamore---	---	---	
						River birch---------	---	---	
CnB2, CnC2------ Coronaca	6C	Slight	Moderate	Moderate	Slight	Loblolly pine-------	70	93	Loblolly pine, shortleaf pine.
						Shortleaf pine------	62	92	
DaB------------- Davidson	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	86	123	Loblolly pine.
						Shortleaf pine------	68	106	
						Northern red oak----	80	62	
						Southern red oak----	72	54	
						Sweetgum------------	80	79	
						White oak-----------	71	53	
						Yellow-poplar-------	80	71	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Common trees	Site index	Volume*	Trees to plant
								cu ft/ha	
DoB-------------Dogue	9A	Slight	Moderate	Slight	Slight	Loblolly pine-------	90	131	Loblolly pine.
						Southern red oak----	80	62	
						Sweetgum------------	90	106	
						Yellow-poplar-------	93	95	
						White oak-----------	80	62	
GaB, GaC--------Georgeville	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	81	112	Loblolly pine.
						Longleaf pine-------	67	72	
						Shortleaf pine------	63	95	
						White oak-----------	69	51	
						Scarlet oak---------	70	52	
						Southern red oak----	67	49	
GbC-------------Georgeville	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	81	112	Loblolly pine.
						Longleaf pine-------	67	72	
						Shortleaf pine------	63	95	
						White oak-----------	69	51	
						Scarlet oak---------	70	52	
						Southern red oak----	67	49	
						Virginia pine-------	---	---	
						Hickory-------------	---	---	
GdE-------------Georgeville	8R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	81	112	Loblolly pine.
						Longleaf pine-------	67	72	
						Shortleaf pine------	63	95	
						White oak-----------	69	51	
						Scarlet oak---------	70	52	
						Southern red oak----	67	49	
						Virginia pine-------	---	---	
						Hickory-------------	---	---	
GeB2------------Georgeville	6C	Slight	Moderate	Moderate	Slight	Loblolly pine-------	70	93	Loblolly pine.
						Longleaf pine-------	60	56	
GeC2------------Georgeville	6C	Moderate	Moderate	Moderate	Slight	Loblolly pine-------	70	93	Loblolly pine.
						Longleaf pine-------	60	56	
GgB, GgC--------Georgeville	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	81	112	Loblolly pine.
						Longleaf pine-------	67	72	
						Shortleaf pine------	63	95	
						White oak-----------	69	51	
						Scarlet oak---------	70	52	
						Southern red oak----	67	49	
						Virginia pine-------	---	---	
						Hickory-------------	---	---	
GoC-------------Goldston	7D	Slight	Slight	Moderate	Severe	Loblolly pine-------	76	103	Loblolly pine.
						Shortleaf pine------	68	106	
						Southern red oak----	66	48	
						White oak-----------	69	51	
						Post oak------------	---	---	
						Hickory-------------	---	---	
						Virginia pine-------	---	---	
						Red maple-----------	---	---	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Common trees	Site index	Volume*	Trees to plant
								cu ft/ha	
GoE------------- Goldston	7D	Moderate	Moderate	Moderate	Severe	Loblolly pine-------	76	103	Loblolly pine.
						Shortleaf pine------	68	106	
						Southern red oak----	66	43	
						White oak-----------	69	51	
						Post oak------------	---	---	
						Hickory-------------	---	---	
						Virginia pine-------	---	---	
						Red maple-----------	---	---	
HeB, HeC-------- Helena	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	84	118	Loblolly pine.
						Shortleaf pine------	66	101	
						White oak-----------	---	---	
						Yellow-poplar-------	---	---	
						Sweetgum------------	---	---	
						Northern red oak----	---	---	
						Southern red oak----	---	---	
						Black oak-----------	---	---	
						Hickory-------------	---	---	
						Virginia pine-------	---	---	
						Willow oak----------	---	---	
						American elm--------	---	---	
MaC------------- Mecklenburg	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	79	108	Loblolly pine.
						Shortleaf pine------	64	97	
						Virginia pine-------	62	95	
						Yellow-poplar-------	97	102	
						Northern red oak----	---	---	
						Sweetgum------------	---	---	
						White oak-----------	---	---	
						Hickory-------------	---	---	
MaD------------- Mecklenburg	8R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	79	108	Loblolly pine.
						Shortleaf pine------	64	97	
						Virginia pine-------	62	95	
						Yellow-poplar-------	97	102	
						Northern red oak----	---	---	
						Sweetgum------------	---	---	
						White oak-----------	---	---	
						Hickory-------------	---	---	
MeB2, MeC2------ Mecklenburg	6C	Slight	Moderate	Moderate	Slight	Loblolly pine-------	66	86	Loblolly pine.
						Shortleaf pine------	59	86	
						Northern red oak----	---	---	
						Virginia pine-------	---	---	
						Sweetgum------------	---	---	
						White oak-----------	---	---	
						Hickory-------------	---	---	
PaC------------- Pacolet	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	78	107	Loblolly pine, shortleaf pine.
						Shortleaf pine------	70	110	
						Yellow-poplar-------	90	90	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						Hickory-------------	---	---	
						White oak-----------	---	---	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Common trees	Site index	Volume*	Trees to plant
								cu ft/ha	
PaD------------- Pacolet	8R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	78	107	Loblolly pine, shortleaf pine.
						Shortleaf pine------	70	110	
						Yellow-poplar-------	90	90	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						Hickory-------------	---	---	
						White oak-----------	---	---	
RnC------------- Rion	8A	Slight	Slight	Slight	Slight	Loblolly pine-------	80	110	Loblolly pine, shortleaf pine.
						Post oak------------	65	48	
						Shortleaf pine------	70	110	
						Southern red oak----	80	62	
						Sweetgum------------	80	79	
						White oak-----------	70	52	
						Yellow-poplar-------	90	90	
						Hickory-------------	---	---	
						Northern red oak----	---	---	
RnD------------- Rion	8R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	80	110	Loblolly pine, shortleaf pine.
						Post oak------------	65	48	
						Shortleaf pine------	70	110	
						Southern red oak----	80	62	
						Sweetgum------------	80	79	
						White oak-----------	70	52	
						Yellow-poplar-------	90	90	
						Hickory-------------	---	---	
						Northern red oak----	---	---	
RvA------------- Riverview	11A	Slight	Slight	Slight	Slight	Loblolly pine-------	100	154	Loblolly pine.
						Yellow-poplar-------	110	124	
						Sweetgum------------	100	138	
ShA------------- Shellbluff	10A	Slight	Slight	Slight	Slight	Sweetgum------------	100	138	Loblolly pine.
						Yellow-poplar-------	105	115	
						Cherrybark oak------	105	172	
						Eastern cottonwood--	105	141	
						Scarlet oak---------	100	82	
						Black walnut--------	---	---	
StB------------- State	10A	Slight	Slight	Slight	Slight	Loblolly pine-------	86	123	Loblolly pine, yellow-poplar.
						Southern red oak----	85	67	
						Yellow-poplar-------	100	107	
						Hickory-------------	---	---	
						American beech------	---	---	
						White oak-----------	---	---	
VaB, VaC-------- Vance	7A	Slight	Slight	Slight	Slight	Loblolly pine-------	73	98	Loblolly pine.
						Shortleaf pine------	68	106	
						White oak-----------	76	58	
						Northern red oak----	72	54	
						Hickory-------------	---	---	
						Virginia pine-------	---	---	
						Yellow-poplar-------	---	---	
						Southern red oak----	---	---	
						Sweetgum------------	---	---	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Common trees	Site index	Volume*	Trees to plant
								cu ft/ha	
WpC**:									
Wilkes	7D	Slight	Slight	Slight	Severe	Loblolly pine	75	101	Loblolly pine.
						Post oak	79	61	
						Shortleaf pine	63	95	
						Southern red oak	76	58	
						Sweetgum	82	84	
						White oak	---	---	
						Hickory	---	---	
						Virginia pine	---	---	
Poindexter	6A	Slight	Slight	Slight	Slight	Loblolly pine	70	93	Loblolly pine, shortleaf pine.
						Shortleaf pine	60	88	
						Virginia pine	65	100	
						Southern red oak	60	43	
Wynott	7D	Slight	Slight	Slight	Moderate	Loblolly pine	75	101	Loblolly pine.
						Sweetgum	---	---	
						Southern red oak	---	---	
						White oak	---	---	
						Willow oak	---	---	
						Hickory	---	---	
						Yellow-poplar	---	---	
WpE**:									
Wilkes	7R	Moderate	Moderate	Slight	Severe	Loblolly pine	75	101	Loblolly pine.
						Post oak	79	61	
						Shortleaf pine	63	95	
						Southern red oak	76	58	
						Sweetgum	82	84	
						White oak	---	---	
						Hickory	---	---	
						Virginia pine	---	---	
Poindexter	5R	Severe	Severe	Moderate	Slight	Loblolly pine	60	76	Loblolly pine, shortleaf pine.
						Shortleaf pine	50	68	
						Virginia pine	65	100	
						Southern red oak	60	43	
Wynott	7R	Moderate	Moderate	Slight	Moderate	Loblolly pine	75	101	Loblolly pine.
						Sweetgum	---	---	
						Southern red oak	---	---	
						White oak	---	---	
						Willow oak	---	---	
						Hickory	---	---	
						Yellow-poplar	---	---	
WtB**, WtC**:									
Wynott	7D	Slight	Slight	Slight	Moderate	Loblolly pine	75	101	Loblolly pine.
						Sweetgum	---	---	
						Southern red oak	---	---	
						White oak	---	---	
						Willow oak	---	---	
						Hickory	---	---	
						Yellow-poplar	---	---	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Common trees	Site index	Volume*	Trees to plant
								cu ft/ha	
WtB**, WtC**:									
Enon-----------	7A	Slight	Slight	Slight	Slight	Loblolly pine-------	73	98	Loblolly pine.
						Shortleaf pine------	63	95	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						Sweetgum------------	87	98	
						White oak-----------	---	---	
						Yellow-poplar-------	88	86	
						Hickory-------------	---	---	
WtD**:									
Wynott---------	7R	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	75	101	Loblolly pine.
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						White oak-----------	---	---	
						Willow oak----------	---	---	
						Hickory-------------	---	---	
						Yellow-poplar-------	---	---	
Enon-----------	7R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	73	98	Loblolly pine.
						Shortleaf pine------	63	95	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						Sweetgum------------	87	98	
						White oak-----------	---	---	
						Yellow-poplar-------	88	86	
						Hickory-------------	---	---	
WvB2**, WvC2**:									
Wynott---------	6C	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	65	85	Loblolly pine.
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						White oak-----------	---	---	
						Willow oak----------	---	---	
						Hickory-------------	---	---	
						Yellow-poplar-------	---	---	
Enon-----------	6C	Moderate	Moderate	Moderate	Slight	Loblolly pine-------	63	81	Loblolly pine.
						Shortleaf pine------	53	74	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						White oak-----------	---	---	
						Sweetgum------------	77	72	
						Hickory-------------	---	---	
WyC**:									
Wynott---------	7X	Slight	Slight	Moderate	Moderate	Loblolly pine-------	75	101	Loblolly pine.
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						White oak-----------	---	---	
						Willow oak----------	---	---	
						Hickory-------------	---	---	
						Yellow-poplar-------	---	---	

See footnotes at end of table.

Table 8.—Woodland Management and Productivity—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Trees to plant
								cu ft/ha	
WyC**:									
Enon-----------	7X	Slight	Moderate	Severe	Slight	Loblolly pine-------	73	98	Loblolly pine.
						Shortleaf pine------	63	95	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						Sweetgum------------	87	98	
						White oak-----------	---	---	
						Yellow-poplar-------	88	86	
						Hickory-------------	---	---	
WyE**:									
Wynott---------	7R	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	75	101	Loblolly pine.
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						White oak-----------	---	---	
						Willow oak----------	---	---	
						Hickory-------------	---	---	
						Yellow-poplar-------	---	---	
Enon-----------	7X	Moderate	Moderate	Severe	Slight	Loblolly pine-------	73	98	Loblolly pine.
						Shortleaf pine------	63	95	
						Virginia pine-------	---	---	
						Northern red oak----	---	---	
						Sweetgum------------	87	98	
						White oak-----------	---	---	
						Yellow-poplar-------	88	86	
						Hickory-------------	---	---	
WzB**:									
Wynott---------	7D	Slight	Slight	Slight	Moderate	Loblolly pine-------	75	101	Loblolly pine.
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						White oak-----------	---	---	
						Willow oak----------	---	---	
						Hickory-------------	---	---	
						Yellow-poplar-------	---	---	
Wilkes---------	7D	Slight	Slight	Slight	--------	Loblolly pine-------	75	98	Loblolly pine.
						Post oak------------	79	61	
						Shortleaf pine------	63	95	
						Southern red oak----	76	58	
						Sweetgum------------	82	84	
						White oak-----------	---	---	
						Hickory-------------	---	---	
						Virginia pine-------	---	---	
Poindexter-----	6A	Slight	Slight	Slight	Slight	Loblolly pine-------	70	93	Loblolly pine, shortleaf pine.
						Shortleaf pine------	60	88	
						Virginia pine-------	65	100	
						Southern red oak----	60	43	

* Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands. Cubic feet can be converted into board feet by multiplying by about 5.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 9.—Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe")

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ApB: Appling	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
ApC: Appling	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
BaB*:					
Badin	Slight	Slight	Moderate: slope, depth to rock, small stones.	Slight	Slight.
Tarrus	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
BaC*:					
Badin	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Severe: too acid.
Tarrus	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
BaD*:					
Badin	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Tarrus	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
BaE*:					
Badin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Tarrus	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
BtB2*:					
Badin	Slight	Slight	Moderate: slope, depth to rock, small stones.	Slight	Moderate: depth to rock.
Tarrus	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
BtC2*:					
Badin	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Severe: too acid.
Tarrus	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.

See footnote at end of table.

Table 9.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CaB*:					
Callison	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, small stones, wetness.	Severe: erodes easily.	Moderate: wetness, depth to rock.
Lignum	Severe: wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
CbC*:					
Callison	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope, depth to rock.
Misenheimer	Severe: wetness, depth to rock, too acid.	Severe: too acid, depth to rock.	Severe: slope, small stones, wetness.	Moderate: wetness.	Severe: too acid, depth to rock.
CcB Cecil	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
CcC Cecil	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
CeB2 Cecil	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
CfA Chenneby	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
ChA Chewacla	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
CmA*:					
Chewacla	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Wehadkee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
CnB2 Coronaca	Slight	Slight	Moderate: slope.	Slight	Slight.
CnC2 Coronaca	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
DaB Davidson	Slight	Slight	Moderate: slope.	Slight	Slight.

See footnote at end of table.

Table 9.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DoB------------------- Dogue	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, erodes easily.	Severe: flooding.
GaB------------------- Georgeville	Slight----------	Slight----------	Moderate: slope, small stones.	Severe: erodes easily.	Slight.
GaC------------------- Georgeville	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
GbC------------------- Georgeville	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight----------	Moderate: small stones, slope.
GdE------------------- Georgeville	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
GeB2------------------ Georgeville	Slight----------	Slight----------	Moderate: slope.	Severe: erodes easily.	Slight.
GeC2------------------ Georgeville	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
GgB------------------- Georgeville	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight----------	Moderate: small stones, large stones.
GgC------------------- Georgeville	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight----------	Moderate: small stones, large stones.
GmC*:					
Georgeville----------	Slight----------	Slight----------	Severe: slope.	Severe: erodes easily.	Slight.
Urban land-----------	Variable--------	Variable--------	Variable--------	Variable--------	Variable.
GoC------------------- Goldston	Severe: small stones, depth to rock.	Severe: small stones, too acid.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: large stones, depth to rock.
GoE------------------- Goldston	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, too acid.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.	Severe: large stones, slope, depth to rock.
HeB------------------- Helena	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
HeC------------------- Helena	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness, slope.
MaC------------------- Mecklenburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.

See footnote at end of table.

Table 9.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
MaD: Mecklenburg	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
MeB2: Mecklenburg	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
MeC2: Mecklenburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
MkC*:					
Mecklenburg	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight	Slight.
Urban land	Variable	Variable	Variable	Variable	Variable.
PaC: Pacolet	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
PaD: Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Pt*: Pits	Variable	Variable	Variable	Variable	Variable.
RnC: Rion	Moderate: slope, small stones.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: small stones, droughty.
RnD: Rion	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: too sandy, slope.	Severe: slope.
RvA: Riverview	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
ShA: Shellbluff	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
StB: State	Slight	Slight	Moderate: slope.	Slight	Slight.
Ud*: Udorthents	Variable	Variable	Variable	Variable	Variable.
VaB: Vance	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones.	Slight	Slight.
VaC: Vance	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
W*. Water					
WpC*:					
Wilkes	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight	Severe: depth to rock.

See footnote at end of table.

Table 9.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WpC*:					
Poindexter	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope, depth to rock.
Wynott	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope, depth to rock.
WpE*:					
Wilkes	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Poindexter	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Wynott	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
WtB*:					
Wynott	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, depth to rock.	Slight	Moderate: depth to rock.
Enon	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
WtC*:					
Wynott	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope, depth to rock.
Enon	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
WtD*:					
Wynott	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Enon	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
WvB2*:					
Wynott	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, depth to rock.	Slight	Moderate: depth to rock.
Enon	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Slight	Slight.

See footnote at end of table.

Table 9.—Recreational Development—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WvC2*:					
Wynott	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope, depth to rock.
Enon	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
WyC*:					
Wynott	Moderate: slope, small stones, percs slowly.	Moderate: slope, small stones, percs slowly.	Severe: slope, small stones.	Slight	Moderate: small stones, large stones.
Enon	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: small stones, large stones.
WyE*:					
Wynott	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Enon	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
WzB*:					
Wynott	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, depth to rock.	Slight	Moderate: depth to rock.
Wilkes	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.
Poindexter	Slight	Slight	Moderate: slope, small stones, depth to rock.	Slight	Moderate: depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 10.—Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
ApB-----------------Appling	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ApC-----------------Appling	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BaB*:										
Badin-------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Tarrus------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BaC*:										
Badin-------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tarrus------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BaD*:										
Badin-------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tarrus------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
BaE*:										
Badin-------------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Tarrus------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
BtB2*:										
Badin-------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Tarrus------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BtC2*:										
Badin-------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tarrus------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CaB*:										
Callison----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Lignum------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

See footnote at end of table.

Table 10.—Wildlife Habitat—Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CbC*:										
Callison----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Misenheimer-------	Fair	Good	Good	Fair	Fair	Fair	Fair	Good	Good	Fair.
CcB---------------- Cecil	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CcC---------------- Cecil	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CeB2--------------- Cecil	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CfA---------------- Chenneby	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
ChA---------------- Chewacla	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
CmA*:										
Chewacla----------	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Wehadkee----------	Very poor.	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
CnB2--------------- Coronaca	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CnC2--------------- Coronaca	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
DaB---------------- Davidson	Good	Good	Good	Good	Fair	Poor	Very poor.	Good	Good	Poor.
DoB---------------- Dogue	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
GaB---------------- Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GaC---------------- Georgeville	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
GbC---------------- Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GdE---------------- Georgeville	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
GeB2--------------- Georgeville	Fair	Fair	Fair	Good	Fair	Very poor.	Very poor.	Fair	Good	Very poor.
GeC2--------------- Georgeville	Poor	Poor	Poor	Fair	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
GgB---------------- Georgeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

Table 10.—Wildlife Habitat—Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
GgC----------------Georgeville	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
GmC*:										
Georgeville-------	Poor	Poor	Poor	Fair	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Urban land.										
GoC----------------Goldston	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
GoE----------------Goldston	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
HeB----------------Helena	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HeC----------------Helena	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MaC----------------Mecklenburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MaD----------------Mecklenburg	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MeB2---------------Mecklenburg	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
MeC2---------------Mecklenburg	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
MkC*:										
Mecklenburg-------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
PaC----------------Pacolet	Poor	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
PaD----------------Pacolet	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Pt*----------------Pits	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
RnC----------------Rion	Poor	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
RnD----------------Rion	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
RvA----------------Riverview	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
ShA----------------Shellbluff	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

See footnote at end of table.

Table 10.—Wildlife Habitat—Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
StB----------------- State	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ud*----------------- Udorthents	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
VaB----------------- Vance	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
VaC----------------- Vance	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
W*. Water										
WpC*:										
Wilkes-------------	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Poindexter---------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Wynott-------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WpE*:										
Wilkes-------------	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Poindexter---------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Wynott-------------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
WtB*:										
Wynott-------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Enon---------------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WtC*:										
Wynott-------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Enon---------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WtD*:										
Wynott-------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Enon---------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

See footnote at end of table.

Total--	505,254	100.0

* Less than 0.1 percent.

Table 10.—Wildlife Habitat—Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
WvB2*, WvC2*:										
Wynott	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Enon	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
WyC*:										
Wynott	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Enon	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
WyE*:										
Wynott	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Enon	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
WzB*:										
Wynott	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Wilkes	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
Poindexter	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 11.—Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
ApB----------------- Appling	Moderate: too clayey.	Slight----------	Slight----------	Moderate: slope.	Moderate: low strength.	Slight.
ApC----------------- Appling	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
BaB*:						
Badin-------------	Moderate: depth to rock, too clayey.	Moderate: shrink-swell.	Moderate: depth to rock, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: depth to rock.
Tarrus------------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
BaC*:						
Badin-------------	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope, depth to rock.
Tarrus------------	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
BaD*, BaE*:						
Badin-------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Tarrus------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
BtB2*:						
Badin-------------	Moderate: depth to rock, too clayey.	Moderate: shrink-swell.	Moderate: depth to rock, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: depth to rock.
Tarrus------------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
BtC2*:						
Badin-------------	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope, depth to rock.
Tarrus------------	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.

See footnote at end of table.

Table 11.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CaB*:						
Callison	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Moderate: wetness, depth to rock.
Lignum	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
CbC*:						
Callison	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope, depth to rock.
Misenheimer	Severe: depth to rock, wetness.	Severe: wetness.	Severe: wetness, depth to rock.	Severe: wetness, slope.	Moderate: depth to rock, wetness, slope.	Severe: depth to rock.
CcB: Cecil	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
CcC: Cecil	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
CeB2: Cecil	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
CfA: Chenneby	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
ChA: Chewacla	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
CmA*:						
Chewacla	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Wehadkee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
CnB2: Coronaca	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
CnC2: Coronaca	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
DaB: Davidson	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.

See footnote at end of table.

Table 11.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
DoB--------------- Dogue	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: too acid.
GaB--------------- Georgeville	Moderate: too clayey.	Slight---------	Slight---------	Moderate: slope.	Moderate: low strength.	Slight.
GaC--------------- Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
GbC--------------- Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: small stones, slope.
GdE--------------- Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
GeB2-------------- Georgeville	Moderate: too clayey.	Slight---------	Slight---------	Moderate: slope.	Moderate: low strength.	Slight.
GeC2-------------- Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
GgB--------------- Georgeville	Moderate: too clayey.	Slight---------	Slight---------	Moderate: slope.	Moderate: low strength.	Moderate: small stones, large stones.
GgC--------------- Georgeville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: small stones, large stones.
GmC*:						
Georgeville------	Moderate: too clayey.	Slight---------	Slight---------	Moderate: slope.	Moderate: low strength.	Slight.
Urban land-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
GoC--------------- Goldston	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Severe: large stones, depth to rock.
GoE--------------- Goldston	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope, depth to rock.
HeB--------------- Helena	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
HeC--------------- Helena	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: wetness, slope.

See footnote at end of table.

Table 11.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
MaC--------------- Mecklenburg	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
MaD--------------- Mecklenburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
MeB2-------------- Mecklenburg	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
MeC2-------------- Mecklenburg	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
MkC*:						
Mecklenburg------	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
Urban land-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
PaC--------------- Pacolet	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
PaD--------------- Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pt*--------------- Pits	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
RnC--------------- Rion	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, droughty.
RnD--------------- Rion	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
RvA--------------- Riverview	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
ShA--------------- Shellbluff	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
StB--------------- State	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Moderate: slope.	Moderate: low strength.	Slight.
Ud*--------------- Udorthents	Variable-------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Variable.
VaB--------------- Vance	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.

See footnote at end of table.

Table 11.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
VaC--------------- Vance	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
W*. Water						
WpC*: Wilkes-----------	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: low strength.	Severe: depth to rock.
Poindexter-------	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope, depth to rock.
Wynott-----------	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope, depth to rock.
WpE*: Wilkes-----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope, depth to rock.
Poindexter-------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wynott-----------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
WtB*: Wynott-----------	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: depth to rock.
Enon-------------	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
WtC*: Wynott-----------	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope, depth to rock.
Enon-------------	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
WtD*: Wynott-----------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.

See footnote at end of table.

Table 11.—Building Site Development—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
WtD*:						
Enon	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
WvB2*:						
Wynott	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: depth to rock.
Enon	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
WvC2*:						
Wynott	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope, depth to rock.
Enon	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
WyC*:						
Wynott	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: small stones, large stones.
Enon	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Severe: small stones, large stones.
WyE*:						
Wynott	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
Enon	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: small stones, large stones, slope.
WzB*:						
Wynott	Moderate: depth to rock, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: depth to rock.
Wilkes	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: low strength.	Severe: depth to rock.
Poindexter	Moderate: depth to rock.	Slight	Moderate: depth to rock.	Moderate: slope.	Moderate: low strength.	Moderate: depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 12.—Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "fair," and other terms. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ApB----------------- Appling	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey, hard to pack.
ApC----------------- Appling	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
BaB*:					
Badin--------------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Tarrus-------------	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
BaC*:					
Badin--------------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Tarrus-------------	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
BaD*, BaE*:					
Badin--------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
Tarrus-------------	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
BtB2*:					
Badin--------------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Tarrus-------------	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BtC2*:					
Badin	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Tarrus	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
CaB*:					
Callison	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Severe: depth to rock.	Poor: depth to rock.
Lignum	Severe: percs slowly, wetness.	Moderate: depth to rock, slope.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
CbC*:					
Callison	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, slope, wetness.	Severe: depth to rock, wetness.	Severe: depth to rock.	Poor: depth to rock.
Misenheimer	Severe: depth to rock, wetness.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, wetness.	Severe: depth to rock, wetness.	Poor: depth to rock, small stones, wetness.
CcB Cecil	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
CcC Cecil	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
CeB2 Cecil	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
CfA Chenneby	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
ChA Chewacla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
CmA*:					
Chewacla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CmA*:					
Wehadkee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness, thin layer.
CnB2 Coronaca	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
CnC2 Coronaca	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
DaB Davidson	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
DoB Dogue	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, too acid.
GaB Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
GaC, GbC Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GdE Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
GeB2 Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
GeC2 Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GgB Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
GgC Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GmC*:					
Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
Urban land	Variable	Variable	Variable	Variable	Variable.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GoC: Goldston	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock.	Poor: depth to rock, small stones.
GoE: Goldston	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
HeB: Helena	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey, too acid.	Moderate: wetness.	Poor: too clayey, hard to pack, too acid.
HeC: Helena	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey, too acid.	Moderate: wetness, slope.	Poor: too clayey, hard to pack, too acid.
MaC: Mecklenburg	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
MaD: Mecklenburg	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
MeB2: Mecklenburg	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
MeC2: Mecklenburg	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
MkC*:					
Mecklenburg	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
Urban land	Variable	Variable	Variable	Variable	Variable.
PaC: Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: too clayey, slope.
PaD: Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Pt*: Pits	Variable	Variable	Variable	Variable	Variable.
RnC: Rion	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
RnD----------------- Rion	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
RvA----------------- Riverview	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
ShA----------------- Shellbluff	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: thin layer.
StB----------------- State	Moderate: wetness, percs slowly.	Severe: seepage.	Severe: seepage, wetness.	Moderate: wetness.	Fair: too clayey, thin layer.
Ud*----------------- Udorthents	Variable---------	Variable---------	Variable---------	Slight-----------	Variable.
VaB----------------- Vance	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
VaC----------------- Vance	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
W*. Water					
WpC*:					
Wilkes-------------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Poindexter---------	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.
Wynott-------------	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
WpE*:					
Wilkes-------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
Poindexter---------	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WpE*:					
Wynott	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
WtB*:					
Wynott	Severe: depth to rock, percs slowly.	Severe: seepage, depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
WtC*:					
Wynott	Severe: depth to rock, percs slowly.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
WtD*:					
Wynott	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
WvB2*:					
Wynott	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
WvC2*:					
Wynott	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.

See footnote at end of table.

Table 12.—Sanitary Facilities—Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WyC*:					
Wynott	Severe: depth to rock, percs slowly.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
WyE*:					
Wynott	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
Enon	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
WzB*:					
Wynott	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Wilkes	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Poindexter	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 13.—Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
ApB, ApC-------------- Appling	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
BaB*, BaC*, BaD*:				
Badin----------------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Tarrus---------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
BaE*:				
Badin----------------	Poor: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Tarrus---------------	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
BtB2*, BtC2*:				
Badin----------------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Tarrus---------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
CaB*:				
Callison-------------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, too clayey, small stones.
Lignum---------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
CbC*:				
Callison-------------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, too clayey, small stones.
Misenheimer----------	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.

See footnote at end of table.

Table 13.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
CcB, CcC, CeB2: Cecil	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CfA: Chenneby	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ChA: Chewacla	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
CmA*:				
Chewacla	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Wehadkee	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
CnB2, CnC2: Coronaca	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
DaB: Davidson	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
DoB: Dogue	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too clayey.
GaB, GaC, GbC: Georgeville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GdE: Georgeville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
GeB2, GeC2, GgB, GgC: Georgeville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GmC*:				
Georgeville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urban land	Variable	Variable	Variable	Variable.
GoC: Goldston	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
GoE: Goldston	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
HeB, HeC: Helena	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MaC: Mecklenburg	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

See footnote at end of table.

Table 13.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
MaD: Mecklenburg	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
MeB2, MeC2: Mecklenburg	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MkC*:				
Mecklenburg	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Urban land	Variable	Variable	Variable	Variable.
PaC: Pacolet	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
PaD: Pacolet	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Pt*: Pits	Variable	Variable	Variable	Variable.
RnC: Rion	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
RnD: Rion	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
RvA: Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
ShA: Shellbluff	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
StB: State	Good	Probable	Improbable: too sandy.	Fair: too clayey, area reclaim.
Ud*: Udorthents	Fair: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Variable.
VaB, VaC: Vance	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
W*. Water				
WpC*:				
Wilkes	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey, small stones.
Poindexter	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Fair: small stones, slope, depth to rock.

See footnote at end of table.

Table 13.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
WpC*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
WpE*:				
Wilkes	Poor: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey, small stones.
Poindexter	Poor: depth to rock, slope.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: slope.
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
WtB*, WtC*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Enon	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WtD*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Enon	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
WvB2*, WvC2*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Enon	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WyC*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Enon	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.

See footnote at end of table.

Table 13.—Construction Materials—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
WyE*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Enon	Poor: shrink-swell, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.
WzB*:				
Wynott	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Wilkes	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey, small stones.
Poindexter	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Fair: small stones, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 14.—Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ApB: Appling	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope	Soil blowing	Favorable.
ApC: Appling	Severe: slope.	Severe: hard to pack.	Deep to water	Slope	Slope, soil blowing.	Slope.
BaB*:						
Badin	Moderate: seepage, depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, depth to rock, too acid.	Depth to rock	Depth to rock.
Tarrus	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
BaC*, BaD*, BaE*:						
Badin	Severe: slope.	Severe: thin layer.	Deep to water	Slope, depth to rock, too acid.	Slope, depth to rock.	Slope, depth to rock.
Tarrus	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
BtB2*:						
Badin	Moderate: seepage, depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, depth to rock, too acid.	Depth to rock	Depth to rock.
Tarrus	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
BtC2*:						
Badin	Severe: slope.	Severe: thin layer.	Deep to water	Slope, depth to rock, too acid.	Slope, depth to rock.	Slope, depth to rock.
Tarrus	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
CaB*:						
Callison	Moderate: depth to rock, slope.	Severe: piping.	Depth to rock, slope.	Slope, wetness, depth to rock.	Depth to rock, erodes easily.	Erodes easily, depth to rock.
Lignum	Moderate: depth to rock, slope.	Moderate: thin layer, hard to pack, wetness.	Slope, percs slowly.	Wetness, percs slowly, slope.	Erodes easily, wetness.	Wetness, erodes easily.

See footnote at end of table.

Table 14.—Water Management—Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CbC*:						
Callison	Severe: slope.	Severe: piping.	Depth to rock, slope.	Slope, wetness, depth to rock.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Misenheimer	Severe: depth to rock, slope.	Severe: piping.	Depth to rock, slope, too acid.	Slope, wetness, depth to rock.	Slope, depth to rock, wetness.	Wetness, slope, depth to rock.
CcB Cecil	Moderate: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope, soil blowing.	Soil blowing	Favorable.
CcC Cecil	Severe: slope.	Severe: piping, hard to pack.	Deep to water	Slope, soil blowing.	Slope, soil blowing.	Slope.
CeB2 Cecil	Moderate: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope	Favorable	Favorable.
CfA Chenneby	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
ChA Chewacla	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
CmA*:						
Chewacla	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
Wehadkee	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
CnB2 Coronaca	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope	Favorable	Favorable.
CnC2 Coronaca	Severe: slope.	Severe: hard to pack.	Deep to water	Slope	Slope	Slope.
DaB Davidson	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope	Favorable	Favorable.
DoB Dogue	Severe: seepage.	Severe: wetness.	Flooding, slope, too acid.	Slope, wetness.	Erodes easily, wetness.	Erodes easily.
GaB Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.

See footnote at end of table.

Table 14.—Water Management—Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
GaC: Georgeville	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
GbC, GdE: Georgeville	Severe: slope.	Severe: hard to pack.	Deep to water	Slope	Slope	Slope.
GeB2: Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
GeC2: Georgeville	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
GgB: Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope	Favorable	Favorable.
GgC: Georgeville	Severe: slope.	Severe: hard to pack.	Deep to water	Slope	Slope	Slope.
GmC*:						
Georgeville	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
GoC, GoE: Goldston	Severe: depth to rock, slope.	Severe: piping, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
HeB: Helena	Moderate: slope.	Severe: hard to pack.	Percs slowly, slope, too acid.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
HeC: Helena	Severe: slope.	Severe: hard to pack.	Percs slowly, slope, too acid.	Slope, wetness, percs slowly.	Slope, wetness, percs slowly.	Slope, percs slowly.
MaC, MaD: Mecklenburg	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
MeB2: Mecklenburg	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
MeC2: Mecklenburg	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
MkC*:						
Mecklenburg	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
PaC, PaD: Pacolet	Severe: slope.	Severe: piping.	Deep to water	Slope	Slope, soil blowing.	Slope.

See footnote at end of table.

Table 14.—Water Management—Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Pt*. Pits	Variable	Variable	Variable	Variable	Variable	Variable.
RnC, RnD. Rion	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty, fast intake.	Slope, soil blowing.	Slope, droughty.
RvA. Riverview	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
ShA. Shellbluff	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
StB. State	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Slope, soil blowing.	Soil blowing	Favorable.
Ud*. Udorthents	Variable	Slight	Deep to water	Variable	Variable	Variable.
VaB. Vance	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, soil blowing.	Percs slowly	Percs slowly.
VaC. Vance	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, soil blowing.	Slope, percs slowly.	Slope, percs slowly.
W*. Water						
WpC*, WpE*:						
Wilkes	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Poindexter	Severe: seepage, slope.	Severe: piping, thin layer.	Deep to water	Slope, erodes easily, depth to rock.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Wynott	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, depth to rock.	Slope, depth to rock, percs slowly.
WtB*:						
Wynott	Moderate: depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, soil blowing, percs slowly.	Depth to rock, soil blowing.	Depth to rock, percs slowly.
Enon	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
WtC*:						
Wynott	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, soil blowing, percs slowly.	Slope, depth to rock, soil blowing.	Slope, depth to rock, percs slowly.
Enon	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, soil blowing, percs slowly.	Slope, soil blowing, percs slowly.	Slope, percs slowly.

See footnote at end of table.

Table 14.—Water Management—Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
WtD*:						
Wynott	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, soil blowing, percs slowly.	Slope, depth to rock, soil blowing.	Slope, depth to rock, percs slowly.
Enon	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
WvB2*:						
Wynott	Moderate: depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Depth to rock	Depth to rock, percs slowly.
Enon	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Percs slowly	Percs slowly.
WvC2*:						
Wynott	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, depth to rock.	Slope, depth to rock, percs slowly.
Enon	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
WyC*, WyE*:						
Wynott	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
Enon	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.
WzB*:						
Wynott	Moderate: depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Depth to rock	Depth to rock, percs slowly.
Wilkes	Severe: depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Depth to rock	Depth to rock.
Poindexter	Severe: seepage.	Severe: piping, thin layer.	Deep to water	Slope, erodes easily, depth to rock.	Depth to rock, erodes easily.	Erodes easily, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 15.—Engineering Index Properties

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Fragments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
ApB, ApC------ Appling	0-6	Sandy loam-------	SM, SC-SM	A-2	0-5	0	86-100	80-100	55-91	15-35	15-35	NP-7
	6-36	Sandy clay, clay loam, clay.	MH, ML, CL	A-7	0-5	0	95-100	90-100	70-95	51-80	41-74	15-30
	36-52	Sandy clay, clay loam, sandy clay loam.	SC, CL	A-4, A-6, A-7	0-5	0	95-100	85-100	70-90	40-75	30-50	8-22
	52-63	Variable---------	---	---	---	---	---	---	---	---	---	---
BaB*, BaC*:												
Badin--------	0-6	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0-5	0-1	85-100	75-95	65-90	60-85	25-40	5-15
	6-24	Silty clay, clay, silty clay loam, channery silty clay loam.	CL, CH	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	15-35
	24-32	Silty clay loam, silty clay.	CL, CH	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	15-35
	32-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Tarrus-------	0-6	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0-5	0	85-100	80-100	65-100	60-90	20-34	NP-10
	6-44	Silty clay loam, silty clay, clay.	MH, CH	A-7	0-5	0	75-100	75-95	60-95	55-95	50-80	15-35
	44-62	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
BaD*, BaE*:												
Badin--------	0-8	Silt loam--------	ML, CL-ML, CL	A-6, A-4	0-5	0-1	85-100	75-95	65-90	60-85	25-40	5-15
	8-20	Silty clay, silty clay loam, channery silty clay loam.	CL, CH	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	15-35
	20-29	Silty clay, silty clay loam, clay.	CH, CL	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	15-35
	29-38	Silty clay, silty clay loam, channery silty clay loam.	CH, CL	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	15-35
	38-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Tarrus-------	0-8	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0-5	0	85-100	80-100	65-100	60-90	20-34	NP-10
	8-38	Silty clay loam, silty clay, clay.	MH, CH	A-7	0-5	0	75-100	75-95	60-95	55-95	50-80	15-35
	38-56	Silty clay, silty clay loam, channery silty clay loam.	CH, CL	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	NP-12
	56-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments 3-10 inches	Frag-ments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
BtB2*, BtC2*:												
Badin--------	0-8	Silty clay loam	CL, ML	A-6, A-7	0-5	0-1	85-100	75-95	65-90	60-85	35-49	11-20
	8-37	Silty clay, silty clay loam, clay.	CL, CH	A-7	0-5	0	65-100	60-100	55-100	50-98	45-65	15-35
	37-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Tarrus-------	0-10	Silty clay loam	CL	A-6, A-7	0-5	0	85-100	75-90	65-90	60-85	32-44	3-20
	10-32	Silty clay loam, silty clay, clay.	MH, CH	A-7	0-5	0	75-100	75-95	60-95	55-95	50-80	15-45
	32-47	Silty clay loam, silt loam.	CL, ML, CL-ML	A-4, A-6	0-5	0	90-100	90-100	65-100	51-95	<30	NP-12
	47-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
CaB*:												
Callison-----	0-14	Silt loam--------	ML, CL-ML	A-4	0-1	0	90-100	88-100	80-95	70-90	16-40	NP-10
	14-26	Silty clay loam, silt loam.	CL, ML	A-4, A-6, A-7	0-1	0	95-100	90-100	90-98	80-95	20-49	7-26
	26-36	Silt loam, silty clay loam, silty clay.	ML, CL	A-4, A-6	0-2	0-1	95-100	90-100	90-98	89-95	16-40	7-27
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	40	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Lignum-------	0-11	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	95-100	80-100	80-100	55-90	20-35	5-19
	11-47	Silty clay loam, silty clay, clay.	CH, CL	A-7	0-5	0	80-100	75-100	70-100	55-90	45-70	22-45
	47-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
CbC*:												
Callison-----	0-14	Silt loam--------	ML, CL-ML	A-4	0-1	0	90-100	88-100	80-95	70-90	16-40	NP-10
	14-26	Silty clay loam, silt loam.	CL, ML	A-4, A-6, A-7	0-1	0	95-100	90-100	90-98	80-95	20-49	7-26
	26-36	Silt loam, silty clay loam, silty clay.	ML, CL	A-4, A-6	0-2	0-1	95-100	90-100	90-98	89-95	16-40	7-27
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	40	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Misenheimer--	0-8	Channery silt loam.	GM, SM, ML	A-4, A-2-4	0-15	0-15	65-90	55-80	30-80	25-75	20-40	NP-10
	8-16	Channery silt loam, channery loam, channery silty clay loam.	GM, SM, ML	A-4, A-2-4, A-6, A-7	0-15	0-15	65-90	55-80	30-80	25-75	20-45	NP-15
	16-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
CcB, CcC------ Cecil	0-9	Sandy loam-------	SM, SC-SM	A-2, A-4	0-5	0	84-100	80-100	67-90	26-42	15-30	NP-7
	9-56	Clay, clay loam	MH, ML, CH	A-7, A-5	0-5	0	97-100	92-100	72-100	55-95	41-80	9-37
	56-63	Variable---------	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Frag- ments >10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
CeB2---------- Cecil	0-8	Sandy clay loam	SM, SC, CL, ML	A-4, A-6	0-5	0	75-100	75-100	68-95	38-81	21-40	3-17
	8-60	Clay, clay loam	MH, ML, CH	A-7, A-5	0-5	0	97-100	92-100	72-100	55-95	41-80	9-37
	60-63	Variable---------	---	---	---	---	---	---	---	---	---	---
CfA----------- Chenneby	0-6	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0	100	95-100	90-100	60-90	20-35	3-15
	6-34	Loam, silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	0	0	100	95-100	90-100	75-95	30-55	8-20
	34-60	Stratified sandy loam to silty clay loam.	SM, SC-SM, ML, CL	A-4, A-7-6, A-6	0	0	100	100	65-90	20-75	0-30	NP-8
ChA----------- Chewacla	0-10	Loam-------------	ML, CL, CL-ML	A-4, A-6, A-7	0	0	98-100	95-100	70-100	55-90	25-49	4-20
	10-17	Silt loam, silty clay loam, clay loam.	ML, CL	A-4, A-6, A-7	0	0	96-100	95-100	80-100	51-98	30-49	4-22
	17-22	Sandy clay loam, loam, sandy loam.	SM, SC-SM, ML, CL	A-4, A-7-6, A-6	0	0	96-100	95-100	60-100	36-70	20-45	2-15
	22-34	Silt loam, clay loam, silty clay loam.	ML, MH, CL, CH	A-4, A-6, A-7	0	0	85-100	75-100	60-100	51-98	22-61	4-28
	34-64	Variable---------	---	---	---	---	---	---	---	---	---	---
CmA*:												
Chewacla-----	0-10	Loam-------------	ML, CL, CL-ML	A-4, A-6, A-7	0	0	98-100	95-100	70-100	55-90	25-49	4-20
	10-17	Silt loam, silty clay loam, clay loam.	ML, CL	A-4, A-6, A-7	0	0	96-100	95-100	80-100	51-98	30-49	4-22
	17-22	Sandy clay loam, loam, sandy loam.	SM, SC-SM, ML, CL	A-4, A-7-6, A-6	0	0	96-100	95-100	60-100	36-70	20-45	2-15
	22-34	Silt loam, clay loam, silty clay loam.	ML, MH, CL, CH	A-4, A-6, A-7	0	0	85-100	75-100	60-100	51-98	22-61	4-28
	34-64	Variable---------	---	---	---	---	---	---	---	---	---	---
Wehadkee-----	0-6	Silt loam--------	CL, MH, ML, CH	A-6, A-7	0	0	100	98-100	85-100	51-98	30-58	10-24
	6-25	Silty clay loam, loam, sandy clay loam, silt loam.	CL, CL-ML, ML, SC	A-6, A-7, A-4	0	0	100	99-100	85-100	45-98	25-58	6-25
	25-60	Variable---------	---	---	---	---	---	---	---	---	---	---
CnB2, CnC2---- Coronaca	0-11	Clay loam--------	CL, CL-ML, SC, SC-SM	A-4, A-6	0-2	0	90-100	90-100	85-98	45-75	20-41	5-18
	11-68	Clay-------------	ML, MH	A-7	0-1	0	95-100	90-100	80-99	65-95	41-70	12-35
	68-71	Clay loam, silty clay loam, clay.	ML, MH	A-7, A-6	0-2	0	95-100	85-100	70-95	55-95	30-65	15-22
DaB----------- Davidson	0-8	Loam-------------	CL, CL-ML, ML	A-4, A-6	0	0	94-100	84-100	80-95	60-75	18-30	3-15
	8-39	Clay, clay loam	CL, CH, ML, MH	A-7, A-6	0	0	96-100	95-100	85-100	65-85	35-65	12-33
	39-62	Clay, clay loam, sandy clay loam.	CL, ML, MH	A-4, A-6, A-7	0	0	95-100	90-100	75-100	50-85	20-65	7-30

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Fragments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
DoB----------- Dogue	0-8	Sandy loam-------	ML, CL, SM, SC	A-4	0	0	95-100	75-100	60-100	40-85	<30	NP-10
	8-45	Clay loam, clay, sandy clay.	CL, CH, SC	A-6, A-7	0	0	95-100	75-100	65-100	40-90	35-60	16-40
	45-63	Stratified sand to sandy clay loam.	SM, SC, SP-SM, SC-SM	A-2, A-4, A-1	0	0	80-100	60-100	35-100	10-40	<30	NP-10
GaB, GaC------ Georgeville	0-13	Silt loam--------	ML	A-4, A-6	0-2	0-1	90-100	80-100	65-100	55-95	<40	NP-11
	13-52	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	0-1	95-100	95-100	90-100	75-98	41-85	15-45
	52-63	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	0	90-100	90-100	65-100	51-95	<30	NP-12
GbC, GdE------ Georgeville	0-12	Silt loam--------	ML	A-4	0-5	0-5	90-100	80-100	65-100	55-95	<40	NP-10
	12-48	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	0	95-100	95-100	90-100	75-98	41-85	15-35
	48-62	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	0	90-100	90-100	65-100	51-95	<30	NP-12
GeB2, GeC2---- Georgeville	0-8	Silty clay loam	CL, ML	A-6, A-7, A-4	0-2	0-5	90-100	90-100	85-100	65-98	24-49	3-20
	8-44	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	0	95-100	95-100	90-100	75-98	41-85	15-45
	44-63	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	0	90-100	90-100	65-100	51-95	<30	NP-12
GgB, GgC------ Georgeville	0-8	Gravelly silt loam.	GM, ML, SM	A-4	0-10	0-5	60-80	55-75	45-75	40-70	<40	NP-10
	8-59	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	0-1	95-100	95-100	90-100	75-98	41-85	15-35
	59-78	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	0	90-100	90-100	65-100	51-95	<30	NP-12
GmC*:												
Georgeville--	0-8	Silty clay loam	CL, ML	A-6, A-7, A-4	0-2	0-10	90-100	90-100	85-100	65-98	24-49	3-20
	8-44	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	0-1	95-100	95-100	90-100	75-98	41-85	15-45
	44-63	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	0	90-100	90-100	65-100	51-95	<30	NP-12
Urban land---	0-6	Variable---------	---	---	---	---	---	---	---	---	---	---
GoC, GoE------ Goldston	0-10	Very channery silt loam.	GM, SM, ML	A-2-4, A-4, A-1-b	20-50	0	40-80	30-80	25-80	20-60	20-40	NP-10
	10-16	Very channery silt loam, very channery very fine sandy loam.	GM, SM, ML	A-2-4, A-4, A-1-b	20-50	0	40-80	30-80	25-80	20-60	20-40	NP-10
	16-23	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Fragments >10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
HeB, HeC------ Helena	0-12	Sandy loam-------	SM, SC-SM, SC, ML	A-2, A-4	0-5	0	90-100	90-100	51-95	26-75	15-35	NP-10
	12-42	Clay loam, sandy clay, clay.	CH	A-7	0-5	0	95-100	95-100	73-97	56-86	50-85	24-50
	42-60	Sandy loam, fine sandy loam, sandy clay loam, loam.	SM, SC-SM, SC, ML	A-2, A-4, A-7	0-35	0	90-100	90-100	51-95	26-75	15-40	NP-20
MaC, MaD------ Mecklenburg	0-7	Loam-------------	ML, SM, CL-ML, CL	A-4, A-6	0-5	0	90-100	80-100	65-90	36-65	20-40	NP-15
	7-33	Clay-------------	CH, MH	A-7	0-5	0	90-100	85-100	80-100	75-95	51-75	20-43
	33-50	Loam, sandy clay loam, clay loam.	CL	A-4, A-6, A-7	0-5	0	90-100	85-100	80-100	50-80	25-49	8-25
	50-61	Variable---------	---	---	---	---	---	---	---	---	---	---
MeB2, MeC2---- Mecklenburg	0-10	Clay loam--------	CL	A-6, A-7-6	0-5	0	90-100	90-100	80-100	50-80	25-49	11-25
	10-35	Clay-------------	CH, MH	A-7	0-5	0	90-100	85-100	80-100	75-95	51-75	20-43
	35-62	Variable---------	---	---	---	---	---	---	---	---	---	---
MkC*:												
Mecklenburg--	0-3	Clay loam--------	CL	A-6, A-7-6	0-5	0	90-100	90-100	80-100	50-80	25-49	11-25
	3-35	Clay, clay loam	CH, MH, CL	A-7	0-5	0	90-100	85-100	80-100	75-95	51-75	20-43
	35-62	Variable---------	---	---	---	---	---	---	---	---	---	---
Urban land---	0-6	Variable---------	---	---	---	---	---	---	---	---	---	---
PaC, PaD------ Pacolet	0-12	Fine sandy loam	SM, SC-SM	A-2, A-1-b, A-4	0-2	0-1	85-100	80-100	42-90	16-42	<28	NP-7
	12-20	Sandy clay, clay loam, clay.	ML, MH, CL	A-6, A-7	0-1	0-1	80-100	80-100	60-100	51-75	38-65	11-33
	20-37	Clay loam, sandy clay loam, sandy loam.	CL, CL-ML, SC-SM, SC	A-2, A-4, A-6	0-2	0-1	80-100	70-100	60-80	30-60	20-35	5-15
	37-63	Sandy loam, fine sandy loam, loam.	SM, SC-SM	A-4, A-2-4	0-2	0-1	80-100	70-100	60-90	25-50	<28	NP-6
Pt*----------- Pits	0-60	Variable---------	---	---	---	---	---	---	---	---	---	---
RnC, RnD------ Rion	0-14	Loamy sand-------	SM	A-1, A-2	0-2	0-1	75-100	70-100	48-80	15-30	---	NP
	14-32	Sandy loam, sandy clay loam, clay loam.	SC, SC-SM, CL-ML, CL	A-2, A-4, A-6	0-2	0-1	90-100	85-100	60-85	30-60	20-35	5-15
	32-60	Sandy loam, sandy clay loam, loamy sand.	SC, SM, SC-SM	A-2, A-4, A-6	0-2	0-1	90-100	80-100	60-85	15-50	<36	NP-12
RvA----------- Riverview	0-8	Sandy loam-------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	60-80	15-30	3-14
	8-36	Sandy clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	60-95	20-40	3-20
	36-60	Loamy fine sand, sandy loam, sand.	SM, SC-SM	A-2, A-4	0	0	100	100	50-95	15-45	<20	NP-7

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Frag- ments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
ShA----------- Shellbluff	0-4	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	98-100	95-100	90-100	75-95	15-40	NP-14
	4-27	Silt loam, loam	ML, CL-ML, CL	A-4, A-6, A-7-6	0	0	98-100	95-100	70-100	70-95	20-41	4-22
	27-38	Silty clay loam, silt loam, loam.	CL, CL-ML, ML	A-6, A-4, A-7-6	0	0	98-100	95-100	70-100	70-95	20-41	4-22
	38-60	Silty clay loam, silt loam, loam.	CL, ML, CL-ML	A-4, A-6, A-7-6	0	0	98-100	95-100	70-100	70-95	20-41	4-22
StB----------- State	0-15	Silt loam--------	ML	A-4	0	0	90-100	80-100	65-100	55-95	<40	NP-11
	15-47	Fine sandy loam, loam, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6, A-2	0	0	85-100	80-100	42-100	16-80	24-40	NP-22
	47-62	Stratified sand to fine sandy loam.	SM, SC-SM, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	60-100	40-90	5-50	0-25	NP-7
Ud*----------- Udorthents	0-60	Sandy loam-------	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0-3	0	95-100	90-100	70-98	30-90	20-45	4-25
W*. Water												
VaB, VaC------ Vance	0-4	Sandy loam-------	SM, SC-SM	A-2, A-4	0-5	0	90-100	80-100	55-80	15-40	15-27	NP-7
	4-30	Clay loam, sandy clay, clay.	CH	A-7	0-5	0	95-100	90-100	75-95	65-80	51-80	25-48
	30-60	Variable---------	---	---	---	---	---	---	---	---	---	---
WpC*:												
Wilkes-------	0-6	Loam-------------	ML, SM	A-2, A-4	0-10	0	90-100	80-100	60-92	25-55	15-35	NP-7
	6-12	Clay loam, clay, sandy clay loam.	CL, CH	A-6, A-7	0-10	0	80-100	80-100	75-96	50-85	30-60	11-35
	12-17	Sandy loam, loam	ML, SM, SC-SM	A-2, A-4	0-5	0	90-100	80-100	55-80	15-40	15-27	NP-7
	17-45	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Poindexter---	0-4	Loam-------------	ML, CL-ML	A-4	0	0	90-100	85-100	85-100	55-90	0-25	NP-7
	4-12	Fine sandy loam, loam.	ML, SM, SC, SC-SM	A-2, A-4	0	0	90-100	85-100	50-100	20-50	5-18	NP-10
	12-23	Clay loam, sandy clay loam, gravelly loam.	SC, CL	A-6	0	0	90-100	50-100	45-100	35-85	30-40	11-20
	23-42	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wynott-------	0-14	Sandy loam-------	SM, SC-SM, SC	A-4, A-2	0-5	0	85-100	85-100	60-95	25-55	15-30	NP-10
	14-24	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	24-28	Sandy clay, sandy clay loam, clay loam.	CL, SC	A-6	0-5	0	85-100	85-100	70-95	35-85	25-50	7-25
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Fragments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WpE*:												
Wilkes-------	0-6	Loam-------------	ML, SM	A-2, A-4	0-10	0	90-100	80-100	60-92	25-55	15-35	NP-7
	6-12	Clay loam, clay, sandy clay loam.	CL, CH	A-6, A-7	0-10	0	80-100	80-100	75-96	50-85	30-60	11-35
	12-17	Sandy loam, loam	ML, SM, SC-SM	A-2, A-4	0-5	0	90-100	80-100	55-80	15-40	15-27	NP-7
	17-45	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Poindexter---	0-4	Loam-------------	ML, CL-ML	A-4	0	0	90-100	85-100	85-100	55-90	0-25	NP-7
	4-12	Fine sandy loam, loam.	ML, SM, SC, SC-SM	A-2, A-4	0	0	90-100	85-100	50-100	20-50	5-18	NP-10
	12-23	Clay loam, sandy clay loam, gravelly loam.	SC, CL	A-6	0	0	90-100	50-100	45-100	35-85	30-40	11-20
	23-42	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wynott-------	0-14	Sandy loam-------	SM, SC-SM, SC	A-4, A-2	0-5	0	85-100	85-100	60-95	25-55	15-30	NP-10
	14-24	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	24-28	Sandy clay, sandy clay loam, clay loam.	CL, SC	A-6	0-5	0	85-100	85-100	70-95	35-85	25-50	7-25
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
WtB*:												
Wynott-------	0-14	Sandy loam-------	SM, SC-SM, SC	A-2, A-4	0-5	0	85-100	85-100	60-85	25-55	15-30	NP-10
	14-24	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	24-28	Sandy clay, sandy clay loam, clay loam.	CL, SC	A-6	0-5	0	85-100	85-100	70-95	35-85	25-50	7-25
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Enon---------	0-8	Loam-------------	ML, CL-ML, CL	A-4, A-6	0-5	0	95-100	90-100	75-95	51-80	30-40	3-20
	8-35	Clay loam, clay	CH, CL	A-7-6	0-5	0	85-100	80-100	75-98	65-95	40-90	25-65
	35-60	Variable---------	---	---	---	---	---	---	---	---	---	---
WtC*:												
Wynott-------	0-14	Sandy loam-------	SM, SC-SM, SC	A-2, A-4	0-5	0	85-100	85-100	60-85	25-55	15-30	NP-10
	14-24	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	24-28	Sandy clay, sandy clay loam, clay loam.	CL, SC	A-6	0-5	0	85-100	85-100	70-95	35-85	25-50	7-25
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Enon---------	0-8	Loam-------------	ML, CL-ML, CL	A-4, A-6	0-5	0	95-100	90-100	75-95	51-80	30-40	3-20
	8-35	Clay loam, clay	CH, CL	A-7-6	0-5	0	85-100	80-100	75-98	65-95	40-90	25-65
	35-60	Variable---------	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Frag- ments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
WtD*:												
Wynott	0-4	Loam	ML, CL-ML, CL	A-6, A-4	0-5	0	95-100	90-100	75-95	51-80	20-40	3-20
	4-32	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	32-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Enon	0-8	Loam	ML, CL-ML, CL	A-4, A-6	0-5	0	95-100	90-100	75-95	51-80	30-40	3-20
	8-33	Clay loam, clay	CH, CL	A-7-6	0-5	0	85-100	80-100	75-98	65-95	40-90	25-65
	33-60	Variable	---	---	---	---	---	---	---	---	---	---
WvB2*, WvC2*:												
Wynott	0-8	Sandy clay loam	CL, CL-ML	A-4, A-6	0-5	0	85-100	85-100	70-90	50-80	20-50	4-25
	8-22	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	22-35	Sandy clay, sandy clay loam, clay loam.	CL, SC	A-6	0-5	0	85-100	85-100	70-95	35-85	25-50	7-25
	35-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Enon	0-8	Sandy clay loam	CL, CL-ML	A-4, A-6	0-5	0	80-100	80-100	70-90	50-80	25-40	4-20
	8-35	Clay loam, clay	CH, CL	A-7-6	0-5	0	85-100	80-100	75-98	65-95	40-90	25-65
	35-62	Variable	---	---	---	---	---	---	---	---	---	---
WyC*, WyE*:												
Wynott	0-13	Loam	ML, CL-ML, CL	A-6	0-10	15-25	95-100	90-100	75-95	51-80	20-40	3-20
	13-31	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-10	0-10	85-100	85-100	80-100	65-95	40-90	25-65
	31-35	Sandy clay, sandy clay loam.	CL, SC	A-6	0-10	0	85-100	85-100	70-95	35-85	25-50	7-25
	35-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Enon	0-14	Loam	ML, CL-ML, CL	A-4, A-6	0-10	15-25	95-100	90-100	75-95	51-80	30-40	3-20
	14-31	Clay, clay loam	CH, CL	A-7-6	0-10	0-10	85-100	80-100	65-98	55-95	40-75	25-49
	31-62	Variable	---	---	---	---	---	---	---	---	---	---
WzB*:												
Wynott	0-14	Loam	ML, CL-ML, CL	A-4, A-6	0-5	0	95-100	90-100	75-95	51-80	20-40	3-20
	14-24	Clay, clay loam, silty clay.	CL, CH	A-7-6	0-5	0	85-100	85-100	80-100	65-95	40-90	25-65
	24-28	Sandy clay, sandy clay loam, clay loam.	CL, SC	A-6	0-5	0	85-100	85-100	70-95	35-85	25-50	7-25
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wilkes	0-6	Loam	ML, SM	A-2, A-4	0-10	0	90-100	80-100	60-92	25-55	15-35	NP-7
	6-12	Clay loam, clay, sandy clay loam.	CL, CH	A-6, A-7	0-10	0	80-100	80-100	75-96	50-85	30-60	11-35
	12-17	Sandy loam, loam	ML, SM, SC-SM	A-2, A-4	0-5	0	90-100	80-100	55-80	15-40	15-27	NP-7
	17-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 15.—Engineering Index Properties—Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Frag- ments >10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
WzB*:												
Poindexter---	0-4	Loam-------------	ML, CL-ML	A-4	0	0	90-100	85-100	85-100	55-90	0-25	NP-7
	4-12	Fine sandy loam, loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	0	90-100	85-100	50-100	20-50	5-18	NP-10
	12-23	Clay loam, sandy clay loam, gravelly loam.	SC, CL	A-6	0	0	90-100	50-100	45-100	35-85	30-40	11-20
	23-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 16.—Physical and Chemical Properties of the Soils

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
ApB, ApC---------Appling	0-6	5-20	1.40-1.65	2.0-6.0	0.10-0.15	4.5-6.5	Low----------	0.24	4	3	.5-2
	6-36	35-60	1.25-1.45	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.28			
	36-52	20-45	1.25-1.45	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.28			
	52-63	---	---	---	---	---	-------------	----			
BaB*, BaC*:											
Badin-----------	0-6	10-27	1.20-1.45	0.6-2.0	0.16-0.20	3.6-6.5	Low----------	0.32	3	5	1-3
	6-24	35-55	1.30-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Low----------	0.24			
	24-32	18-45	1.20-1.40	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.32			
	32-60	---	---	---	---	---	-------------	----			
Tarrus----------	0-6	12-27	1.10-1.40	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.37	4	3	.5-2
	6-44	45-60	1.40-1.60	0.6-2.0	0.10-0.19	4.5-5.5	Low----------	0.28			
	44-62	---	---	0.00-0.06	---	---	-------------	----			
BaD*, BaE*:											
Badin-----------	0-8	10-27	1.20-1.45	0.6-2.0	0.16-0.20	3.6-6.5	Low----------	0.32	3	5	1-3
	8-20	35-55	1.20-1.40	0.6-2.0	0.13-0.18	3.6-5.5	Low----------	0.32			
	20-29	35-55	1.30-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Moderate-----	0.24			
	29-38	18-45	1.20-1.40	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.32			
	38-60	---	---	---	---	---	-------------	----			
Tarrus----------	0-8	12-27	1.10-1.40	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.37	4	3	.5-2
	8-38	45-60	1.40-1.60	0.6-2.0	0.10-0.19	4.5-5.5	Low----------	0.28			
	38-56	18-45	1.20-1.40	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.32			
	56-60	---	---	0.00-0.06	---	---	-------------	----			
BtB2*, BtC2*:											
Badin-----------	0-8	27-40	1.20-1.45	0.6-2.0	0.14-0.19	3.6-6.5	Low----------	0.28	2	7	.5-2
	8-37	35-55	1.30-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Moderate-----	0.24			
	37-60	---	---	---	---	---	-------------	----			
Tarrus----------	0-10	27-40	1.30-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.32	3	6	0-2
	10-32	45-60	1.40-1.60	0.6-2.0	0.10-0.19	4.5-5.5	Low----------	0.28			
	32-47	18-45	1.20-1.40	0.2-0.6	0.12-0.18	3.6-5.5	Low----------	0.32			
	47-60	---	---	0.00-0.06	---	---	-------------	----			
CaB*:											
Callison--------	0-14	4-20	1.20-1.40	0.6-2.0	0.15-0.22	5.1-6.0	Low----------	0.43	3	5	.5-2
	14-26	18-35	1.20-1.40	0.2-0.6	0.12-0.18	3.6-6.0	Low----------	0.43			
	26-36	18-45	1.20-1.40	0.2-0.6	0.11-0.18	3.6-6.0	Moderate-----	0.37			
	36-40	---	---	---	---	---	-------------	----			
	40	---	---	---	---	---	-------------	----			
Lignum----------	0-11	10-25	1.20-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37	4	3	.5-2
	11-47	35-55	1.25-1.55	<0.06	0.10-0.18	4.5-5.5	Moderate-----	0.28			
	47-60	---	---	0.0-0.06	---	---	-------------	----			
CbC*:											
Callison--------	0-14	4-20	1.20-1.40	0.6-2.0	0.15-0.22	5.1-6.0	Low----------	0.43	3	5	.5-2
	14-26	18-35	1.20-1.40	0.2-0.6	0.12-0.18	3.6-6.0	Low----------	0.43			
	26-36	18-45	1.20-1.40	0.2-0.6	0.11-0.18	3.6-6.0	Moderate-----	0.37			
	36-40	---	---	---	---	---	-------------	----			
	40	---	---	---	---	---	-------------	----			

See footnote at end of table.

Table 16.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
CbC*:											
Misenheimer-----	0-8	7-27	1.40-1.60	0.6-6.0	0.12-0.18	3.5-5.5	Low----------	0.15	2	5	.5-1
	8-16	7-35	1.40-1.60	0.6-6.0	0.12-0.18	3.5-5.5	Low----------	0.15			
	16-22	---	---	---	---	---	-------------	----			
	22	---	---	---	---	---	-------------	----			
CcB, CcC---------	0-9	5-20	1.30-1.50	2.0-6.0	0.12-0.14	4.5-6.5	Low----------	0.28	4	3	.5-1
Cecil	9-56	35-70	1.30-1.50	0.6-2.0	0.13-0.15	4.5-5.5	Low----------	0.28			
	56-63	---	---	---	---	---	-------------	----			
CeB2-------------	0-8	20-35	1.30-1.50	0.6-2.0	0.13-0.15	4.5-6.5	Low----------	0.28	3	5	.5-1
Cecil	8-60	35-70	1.30-1.50	0.6-2.0	0.13-0.15	4.5-5.5	Low----------	0.28			
	60-63	---	---	---	---	---	-------------	----			
CfA--------------	0-6	12-27	1.30-1.60	0.6-2.0	0.14-0.20	4.5-6.0	Low----------	0.37	5	5	.5-1
Chenneby	6-34	12-35	1.30-1.50	0.6-2.0	0.15-0.20	4.5-6.0	Low----------	0.32			
	34-60	8-30	1.30-1.50	2.0-6.0	0.05-0.10	4.5-6.0	Low----------	0.24			
ChA--------------	0-10	10-35	1.30-1.60	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.28	5	5	1-4
Chewacla	10-17	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.32			
	17-22	18-35	1.30-1.60	0.6-2.0	0.12-0.20	4.5-6.5	Low----------	0.28			
	22-34	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-7.8	Low----------	0.32			
	34-64	---	---	---	---	---	-------------	----			
CmA*:											
Chewacla--------	0-10	10-35	1.30-1.60	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.28	5	5	1-4
	10-17	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.32			
	17-22	18-35	1.30-1.60	0.6-2.0	0.12-0.20	4.5-6.5	Low----------	0.28			
	22-34	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-7.8	Low----------	0.32			
	34-64	---	---	---	---	---	-------------	----			
Wehadkee--------	0-6	6-40	1.35-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.32	5	6	2-5
	6-25	18-35	1.30-1.50	0.6-2.0	0.16-0.20	4.5-6.5	Low----------	0.32			
	25-60	---	---	---	---	---	-------------	----			
CnB2, CnC2-------	0-11	15-37	1.30-1.60	0.6-2.0	0.12-0.16	5.6-7.3	Low----------	0.24	5	6	.5-2
Coronaca	11-68	35-70	1.20-1.50	0.6-2.0	0.12-0.16	5.6-7.3	Low----------	0.24			
	68-71	30-60	1.30-1.60	0.6-2.0	0.10-0.16	5.6-7.3	Low----------	0.24			
DaB--------------	0-8	15-27	1.30-1.55	0.6-2.0	0.14-0.18	4.5-6.5	Low----------	0.28	5	6	.5-2
Davidson	8-39	40-75	1.20-1.50	0.6-2.0	0.12-0.16	4.5-6.5	Low----------	0.24			
	39-62	25-60	1.20-1.50	0.6-2.0	0.12-0.18	4.5-6.5	Low----------	0.28			
DoB--------------	0-8	5-15	1.30-1.45	0.6-2.0	0.14-0.20	3.5-5.5	Low----------	0.37	5	5	.5-1
Dogue	8-45	35-50	1.45-1.60	0.2-0.6	0.12-0.19	3.5-5.5	Moderate-----	0.28			
	45-63	5-30	1.30-1.50	0.6-6.0	0.05-0.14	3.5-5.5	Low----------	0.17			
GaB, GaC---------	0-13	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-7.3	Low----------	0.43	4	5	.5-2
Georgeville	13-52	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.28			
	52-63	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low----------	0.32			
GbC, GdE---------	0-12	5-27	1.10-1.40	0.6-2.0	0.12-0.17	4.5-7.3	Low----------	0.24	4	8	.5-2
Georgeville	12-48	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.28			
	48-62	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low----------	0.32			
GeB2, GeC2-------	0-8	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-7.3	Low----------	0.49	4	6	<.5
Georgeville	8-44	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.28			
	44-63	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low----------	0.32			

See footnote at end of table.

Table 16.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
GgB, GgC---------Georgeville	0-8	5-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-7.3	Low----------	0.24	4	5	.5-2
	8-59	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.28			
	59-78	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low----------	0.32			
GmC*: Georgeville-----	0-8	27-35	1.20-1.40	0.6-2.0	0.13-0.18	4.5-7.3	Low----------	0.49	4	6	<.5
	8-44	35-65	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.28			
	44-63	15-40	1.20-1.40	0.6-2.0	0.05-0.10	4.5-5.5	Low----------	0.32			
GmC*: Urban land------	0-6	---	---	---	---	---	-------------	----	---	---	---
GoC, GoE---------Goldston	0-10	5-15	1.40-1.60	2.0-6.0	0.06-0.12	3.6-5.5	Low----------	0.05	2	8	.5-2
	10-16	5-27	1.40-1.60	2.0-6.0	0.06-0.12	3.6-5.5	Low----------	0.05			
	16-23	---	---	---	---	---	-------------	----			
	23	---	---	---	---	---	-------------	----			
HeB, HeC---------Helena	0-12	5-20	1.58-1.62	2.0-6.0	0.10-0.12	3.6-6.5	Low----------	0.24	4	5	.5-2
	12-42	35-60	1.44-1.55	0.06-0.2	0.13-0.15	3.6-5.5	High---------	0.28			
	42-60	---	---	---	---	---	-------------	----			
MaC, MaD---------Mecklenburg	0-7	8-25	1.30-1.50	0.6-2.0	0.14-0.19	5.6-7.3	Low----------	0.24	4	5	.5-2
	7-33	40-60	1.40-1.60	0.06-0.2	0.12-0.14	5.6-7.3	Moderate-----	0.28			
	33-50	20-35	1.40-1.60	0.6-2.0	0.12-0.14	5.6-7.3	Low----------	0.32			
	50-61	---	---	---	---	---	-------------	----			
MeB2, MeC2-------Mecklenburg	0-10	20-35	1.40-1.60	0.6-2.0	0.12-0.14	5.6-7.3	Low----------	0.28	3	6	.5-1
	10-35	40-60	1.40-1.60	0.06-0.2	0.12-0.14	5.6-7.3	Moderate-----	0.28			
	35-62	---	---	---	---	---	-------------	----			
MkC*: Mecklenburg-----	0-3	20-35	1.40-1.60	0.6-2.0	0.12-0.14	5.6-7.3	Low----------	0.28	3	6	.5-1
	3-35	40-60	1.40-1.60	0.06-0.2	0.12-0.14	5.6-7.3	Moderate-----	0.28			
	35-62	---	---	---	---	---	-------------	----			
Urban land------	0-6	---	---	---	---	---	-------------	----	---	---	---
PaC, PaD---------Pacolet	0-12	8-20	1.00-1.50	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	0.20	3	3	.5-2
	12-20	35-65	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.28			
	20-37	15-30	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low----------	0.28			
	37-63	10-25	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low----------	0.28			
Pt*--------------Pits	0-60	---	---	---	---	---	-------------	----	---	---	---
RnC, RnD---------Rion	0-14	2-15	1.30-1.50	2.0-6.0	0.06-0.08	4.5-6.5	Low----------	0.17	3	2	.5-2
	14-32	18-35	1.40-1.50	0.6-2.0	0.08-0.15	4.5-6.5	Low----------	0.20			
	32-60	2-20	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.5	Low----------	0.20			
RvA--------------Riverview	0-8	10-27	1.30-1.60	0.6-2.0	0.16-0.24	4.5-6.5	Low----------	0.32	5	5	.5-2
	8-36	18-35	1.20-1.40	0.6-2.0	0.15-0.22	4.5-6.0	Low----------	0.24			
	36-60	4-18	1.20-1.50	2.0-6.0	0.07-0.11	4.5-6.0	Low----------	0.17			
ShA--------------Shellbluff	0-4	10-27	1.20-1.40	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	5	5	.5-2
	4-27	18-35	1.20-1.50	0.6-2.0	0.12-0.22	4.5-6.0	Low----------	0.28			
	27-38	18-35	1.20-1.50	0.6-2.0	0.12-0.22	4.5-6.0	Low----------	0.28			
	38-60	18-35	1.20-1.50	0.6-2.0	0.12-0.22	4.6-6.0	Low----------	0.28			

See footnote at end of table.

Table 16.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
StB-------------- State	0-15	5-15	1.25-1.40	0.6-6.0	0.08-0.15	3.6-5.5	Low----------	0.28	5	3	.5-2
	15-47	18-34	1.35-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Low----------	0.28			
	47-62	2-15	1.35-1.50	2.0-20	0.02-0.10	3.6-6.5	Low----------	0.17			
Ud*-------------- Udorthents	0-60	10-50	1.30-1.65	0.06-2.0	0.10-0.17	4.5-7.8	Moderate-----	0.28	5	5	0-1
VaB, VaC--------- Vance	0-4	8-20	1.45-1.70	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	0.24	3	3	.5-2
	4-30	35-60	1.25-1.40	0.06-0.2	0.12-0.15	4.5-5.5	Moderate-----	0.28			
	30-60	---	---	---	---	---	-------------	----			
W*. Water											
WpC*:											
Wilkes----------	0-6	5-20	1.30-1.50	2.0-6.0	0.11-0.15	5.1-6.5	Low----------	0.24	2	5	.5-2
	6-12	20-45	1.40-1.60	0.2-0.6	0.15-0.20	6.1-7.8	Moderate-----	0.32			
	12-17	20-40	---	---	0.10-0.14	5.1-6.5	Low----------	----			
	17-45	---	---	---	---	---	-------------	----			
Poindexter------	0-4	10-25	1.25-1.45	2.0-6.0	0.12-0.20	5.1-7.3	Low----------	0.37	3	5	.5-2
	4-12	5-18	1.30-1.55	2.0-6.0	0.12-0.20	5.1-7.3	Low----------	----			
	12-23	20-35	1.35-1.45	0.6-2.0	0.13-0.19	5.1-7.3	Low----------	0.24			
	23-42	---	---	0.00-0.06	---	---	-------------	----			
Wynott----------	0-14	10-27	1.20-1.50	0.6-2.0	0.14-0.20	4.5-6.5	Low----------	0.32	3	5	.5-2
	14-24	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	24-28	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	28-60	---	---	0.00-0.06	---	---	-------------	----			
WpE*:											
Wilkes----------	0-6	5-20	1.30-1.50	2.0-6.0	0.11-0.15	5.1-6.5	Low----------	0.24	2	5	.5-2
	6-12	20-45	1.40-1.60	0.2-0.6	0.15-0.20	6.1-7.8	Moderate-----	0.32			
	12-17	20-40	---	---	0.10-0.14	5.1-6.5	Low----------	----			
	17-45	---	---	---	---	---	-------------	----			
Poindexter------	0-4	10-25	1.25-1.45	2.0-6.0	0.12-0.20	5.1-7.3	Low----------	0.37	3	5	.5-2
	4-12	5-18	1.30-1.55	2.0-6.0	0.12-0.20	5.1-7.3	Low----------	----			
	12-23	20-35	1.35-1.45	0.6-2.0	0.13-0.19	5.1-7.3	Low----------	0.24			
	23-42	---	---	0.00-0.06	---	---	-------------	----			
Wynott----------	0-14	10-27	1.20-1.50	0.6-2.0	0.14-0.20	4.5-6.5	Low----------	0.32	3	5	.5-2
	14-24	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	24-28	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	28-60	---	---	0.00-0.06	---	---	-------------	----			
WtB*:											
Wynott----------	0-14	5-20	1.30-1.65	2.0-6.0	0.11-0.15	4.5-6.5	Low----------	0.28	3	3	.5-2
	14-24	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	24-28	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	28-60	---	---	0.00-0.06	---	---	-------------	----			
Enon------------	0-8	7-27	1.25-1.45	0.6-2.0	0.15-0.20	5.1-6.5	Low----------	0.32	3	5	.5-2
	8-35	35-60	1.20-1.40	0.06-0.2	0.12-0.16	5.1-7.8	High---------	0.28			
	35-60	---	---	---	---	---	-------------	----			

See footnote at end of table.

Table 16.—Physical and Chemical Properties of the Soils—Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH					Pct
WtC*:											
Wynott----------	0-14	5-20	1.30-1.65	2.0-6.0	0.11-0.15	4.5-6.5	Low----------	0.28	3	3	.5-2
	14-24	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	24-28	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	28-60	---	---	0.00-0.06	---	---	-------------	----			
Enon------------	0-8	7-27	1.25-1.45	0.6-2.0	0.15-0.20	5.1-6.5	Low----------	0.32	3	5	.5-2
	8-35	35-60	1.20-1.40	0.06-0.2	0.12-0.16	5.1-7.8	High---------	0.28			
	35-60	---	---	---	---	---	-------------	----			
WtD*:											
Wynott----------	0-4	7-27	1.25-1.45	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.32	3	3	.5-2
	4-32	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	32-60	---	---	0.00-0.06	---	---	-------------	----			
Enon------------	0-8	7-27	1.25-1.45	0.6-2.0	0.15-0.20	5.1-6.5	Low----------	0.32	3	5	.5-2
	8-33	35-60	1.20-1.40	0.06-0.2	0.12-0.16	5.1-7.8	High---------	0.28			
	33-60	---	---	---	---	---	-------------	----			
WvB2*, WvC2*:											
Wynott----------	0-8	20-35	1.25-1.50	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	3	6	.5-1
	8-22	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	22-35	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	35-60	---	---	0.00-0.06	---	---	-------------	----			
Enon------------	0-8	20-35	1.30-1.50	0.6-2.0	0.12-0.15	5.1-6.5	Low----------	0.28	2	6	<1
	8-35	35-60	1.20-1.40	0.06-0.2	0.12-0.16	5.1-7.8	High---------	0.28			
	35-62	---	---	---	---	---	-------------	----			
WyC*, WyE*:											
Wynott----------	0-13	5-20	1.45-1.65	2.0-6.0	0.08-0.15	4.5-6.5	Low----------	0.10	2	8	.5-2
	13-31	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	31-35	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	35-60	---	---	0.00-0.06	---	---	-------------	----			
Enon------------	0-14	5-20	1.45-1.65	2.0-6.0	0.06-0.11	5.1-6.5	Low----------	0.10	3	8	.5-2
	14-31	35-60	1.20-1.40	0.06-0.2	0.12-0.16	5.1-7.8	High---------	0.28			
	31-62	---	---	---	---	---	-------------	----			
WzB*:											
Wynott----------	0-14	10-27	1.20-1.50	0.6-2.0	0.14-0.20	4.5-6.5	Low----------	0.32	3	5	.5-2
	14-24	35-65	1.20-1.50	0.06-0.2	0.15-0.17	4.5-6.5	High---------	0.28			
	24-28	20-45	1.30-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Low----------	0.28			
	28-60	---	---	0.00-0.06	---	---	-------------	----			
Wilkes----------	0-6	5-20	1.30-1.50	2.0-6.0	0.11-0.15	5.1-6.5	Low----------	0.24	2	5	.5-2
	6-12	20-45	1.40-1.60	0.2-0.6	0.15-0.20	6.1-7.8	Moderate-----	0.32			
	12-17	20-40	---	---	0.10-0.14	5.1-6.5	Low----------	----			
	17-60	---	---	---	---	---	-------------	----			
Poindexter------	0-4	10-25	1.25-1.45	2.0-6.0	0.12-0.20	5.1-7.3	Low----------	0.37	3	5	.5-2
	4-12	5-18	1.30-1.55	2.0-6.0	0.08-0.15	5.1-7.3	Low----------	----			
	12-23	20-35	1.35-1.45	0.6-2.0	0.13-0.19	5.1-7.3	Low----------	0.24			
	23-40	---	---	0.00-0.06	---	---	-------------	----			

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 17.—Soil and Water Features

("Flooding" and "water table" and terms such as "frequent," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hard-ness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
ApB, ApC---------- Appling	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
BaB*, BaC*, BaD*, BaE*, BtB2*, BtC2*:											
Badin-----------	B	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	High.
Tarrus----------	B	None--------	---	---	>6.0	---	---	40-60	Soft	High-----	High.
CaB*:											
Callison---------	C	None--------	---	---	1.0-3.0	Perched	Dec-Mar	20-40	Soft	Moderate	High.
Lignum-----------	C	None--------	---	---	1.0-2.5	Perched	Dec-May	40-60	Soft	High-----	High.
CbC*:											
Callison---------	C	None--------	---	---	1.5-3.0	Perched	Dec-Mar	20-40	Soft	Moderate	High.
Misenheimer------	C	None--------	---	---	1.0-1.5	Perched	Dec-Apr	10-20	Soft	High-----	High.
CcB, CcC, CeB2---- Cecil	B	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
CfA--------------- Chenneby	C	Frequent----	Brief to long.	Nov-Apr	1.0-2.5	Apparent	Jan-Mar	>60	---	High-----	Moderate.
ChA--------------- Chewacla	C	Frequent----	Brief to long.	Nov-Apr	0.5-2.0	Apparent	Nov-Apr	>60	---	High-----	Moderate.
CmA*:											
Chewacla---------	C	Frequent----	Brief to long.	Nov-Apr	0.5-2.0	Apparent	Nov-Apr	>60	---	High-----	Moderate.
Wehadkee---------	D	Frequent----	Brief to long.	Nov-Jun	0-1.0	Apparent	Nov-May	>60	---	High-----	Moderate.
CnB2, CnC2-------- Coronaca	B	None--------	---	---	>6.0	---	---	>60	---	High-----	Moderate.
DaB--------------- Davidson	B	None--------	---	---	>6.0	---	---	>60	---	High-----	Moderate.
DoB--------------- Dogue	C	Occasional	Brief-----	Dec-Apr	1.5-3.0	Apparent	Jan-Mar	>60	---	High-----	High.
GaB, GaC, GbC, GdE, GeB2, GeC2, GgB, GgC--------- Georgeville	B	None--------	---	---	>6.0	---	---	>60	---	High-----	High.

See footnote at end of table.

Table 17.—Soil and Water Features—Continued

Soil name and map symbol	Hydro- logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hard- ness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
GmC*:											
Georgeville------	B	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Urban land-------	---	None--------	---	---	>2.0	---	---	>10	---	---	---
GoC, GoE---------- Goldston	C	None--------	---	---	>6.0	---	---	10-20	Soft	Moderate	High.
HeB, HeC---------- Helena	C	None--------	---	---	1.5-2.5	Perched	Jan-Apr	>60	---	High-----	High.
MaC, MaD, MeB2, MeC2------------- Mecklenburg	C	None--------	---	---	>6.0	---	---	>60	---	High-----	Moderate.
MkC*:											
Mecklenburg------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	Moderate.
Urban land-------	---	None--------	---	---	>2.0	---	---	>10	---	---	---
PaC, PaD---------- Pacolet	B	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Pt*--------------- Pits	---	None--------	---	---	>6.0	---	---	>60	---	---	---
RnC, RnD---------- Rion	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	High.
RvA--------------- Riverview	B	Frequent----	Brief-----	Dec-Mar	3.0-5.0	Apparent	Dec-Mar	>60	---	Low------	Moderate.
ShA--------------- Shellbluff	B	Occasional--	Brief-----	Dec-Apr	3.0-5.0	Apparent	Dec-Apr	>60	---	Low------	Moderate.
StB--------------- State	B	None--------	---	---	4.0-6.0	Apparent	Dec-Jun	>60	---	Moderate	High.
Ud*--------------- Udorthents	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	High.
VaB, VaC---------- Vance	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
W*. Water											
WpC*, WpE*:											
Wilkes-----------	C	None--------	---	---	>6.0	---	---	10-20	Soft	Moderate	Moderate.
Poindexter-------	B	None--------	---	---	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Wynott-----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	Moderate.

See footnote at end of table.

Table 17.—Soil and Water Features—Continued

Soil name and map symbol	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hard-ness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In			
WtB*, WtC*, WtD*, WvB2*, WvC2*, WyC*, WyE*:											
Wynott----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	Moderate.
Enon------------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	Moderate.
WzB*:											
Wynott-----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	Moderate.
Wilkes-----------	C	None--------	---	---	>6.0	---	---	10-20	Soft	Moderate	Moderate.
Poindexter-------	B	None--------	---	---	>6.0	---	---	20-40	Soft	Moderate	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 18.—Classification of the Soils

Soil name	Family or higher taxonomic class
Appling	Fine, kaolinitic, thermic Typic Kanhapludults
Badin	Fine, mixed, semiactive, thermic Typic Hapludults
Callison	Fine-silty, siliceous, semiactive, thermic Aquic Hapludults
Cecil	Fine, kaolinitic, thermic Typic Kanhapludults
Chenneby	Fine-silty, mixed, active, thermic Fluvaquentic Dystrudepts
Chewacla	Fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts
Coronaca	Fine, kaolinitic, thermic Rhodic Paleudalfs
Davidson	Fine, kaolinitic, thermic Rhodic Kandiudults
Dogue	Fine, mixed, semiactive, thermic Aquic Hapludults
Enon	Fine, mixed, active, thermic Ultic Hapludalfs
Georgeville	Fine, kaolinitic, thermic Typic Kanhapludults
Goldston	Loamy-skeletal, siliceous, semiactive, thermic, shallow Typic Dystrudepts
Helena	Fine, mixed, semiactive, thermic Aquic Hapludults
Lignum	Fine, mixed, semiactive, thermic Aquic Hapludults
Mecklenburg	Fine, mixed, active, thermic Ultic Hapludalfs
Misenheimer	Loamy, siliceous, semiactive, thermic, shallow Aquic Dystrudepts
Pacolet	Fine, kaolinitic, thermic Typic Kanhapludults
Poindexter	Fine-loamy, mixed, active, thermic Typic Hapludalfs
Rion	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Riverview	Fine-loamy, mixed, active, thermic Fluventic Dystrudepts
Shellbluff	Fine-silty, mixed, active, thermic Fluventic Dystrudepts
State	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Tarrus	Fine, kaolinitic, thermic Typic Kanhapludults
Udorthents	Udorthents
Vance	Fine, mixed, semiactive, thermic Typic Hapludults
Wehadkee	Fine-loamy, mixed, active, nonacid, thermic Fluvaquentic Endoaquepts
Wilkes	Loamy, mixed, active, thermic, shallow Typic Hapludalfs
Wynott	Fine, mixed, active, thermic Typic Hapludalfs

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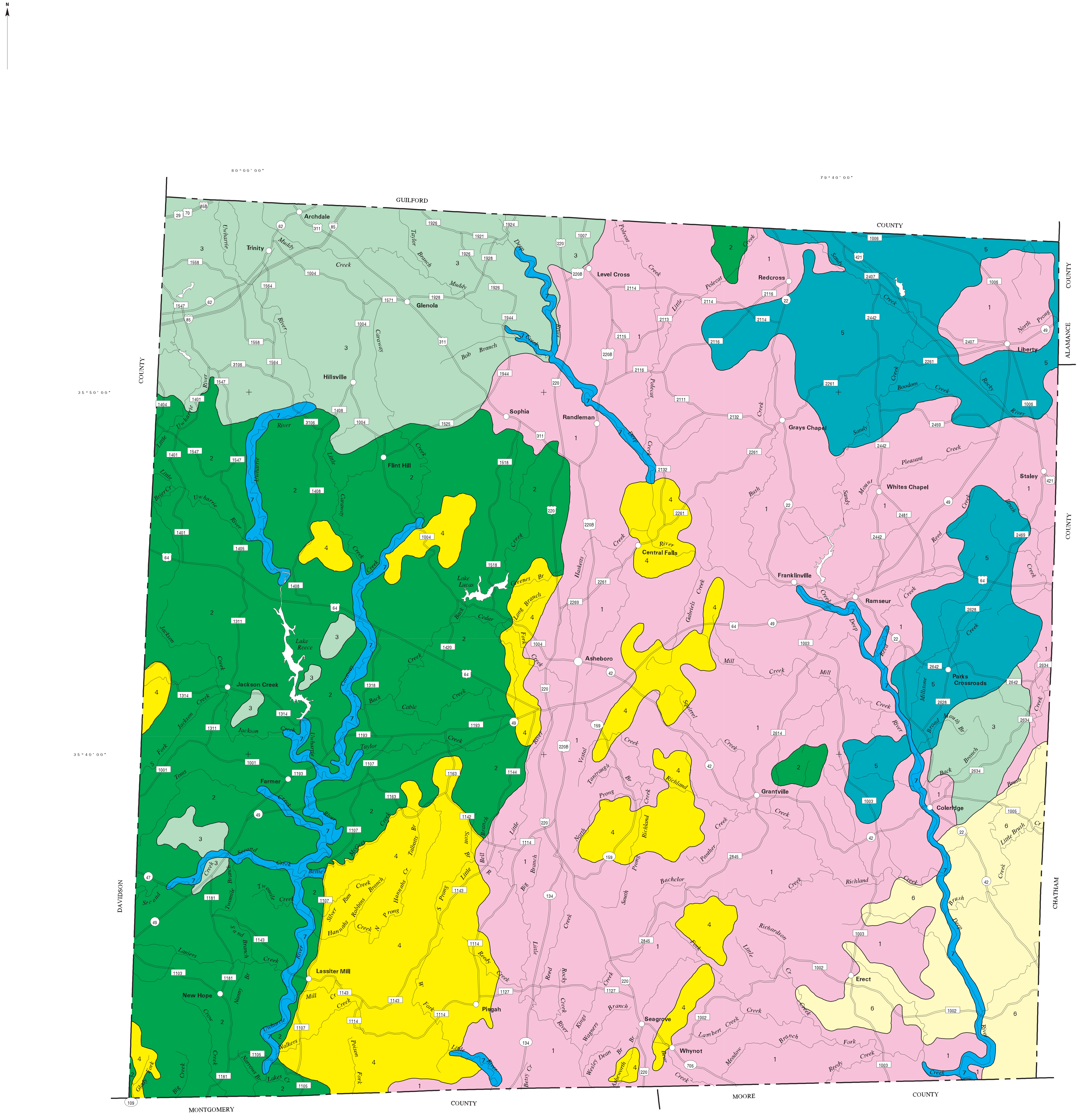


LEGEND

1	Georgeville
2	Badin-Tarrus
3	Mecklenburg-Wynott-Enon
4	Georgeville, extremely bouldery
5	Vance-Cecil-Appling
6	Callison-Lignum-Goldston
7	Riverview-Chewacla

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
FOREST SERVICE
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE
NORTH CAROLINA COOPERATIVE EXTENSION SERVICE
RANDOLPH SOIL AND WATER CONSERVATION DISTRICT
RANDOLPH COUNTY BOARD OF COMMISSIONERS

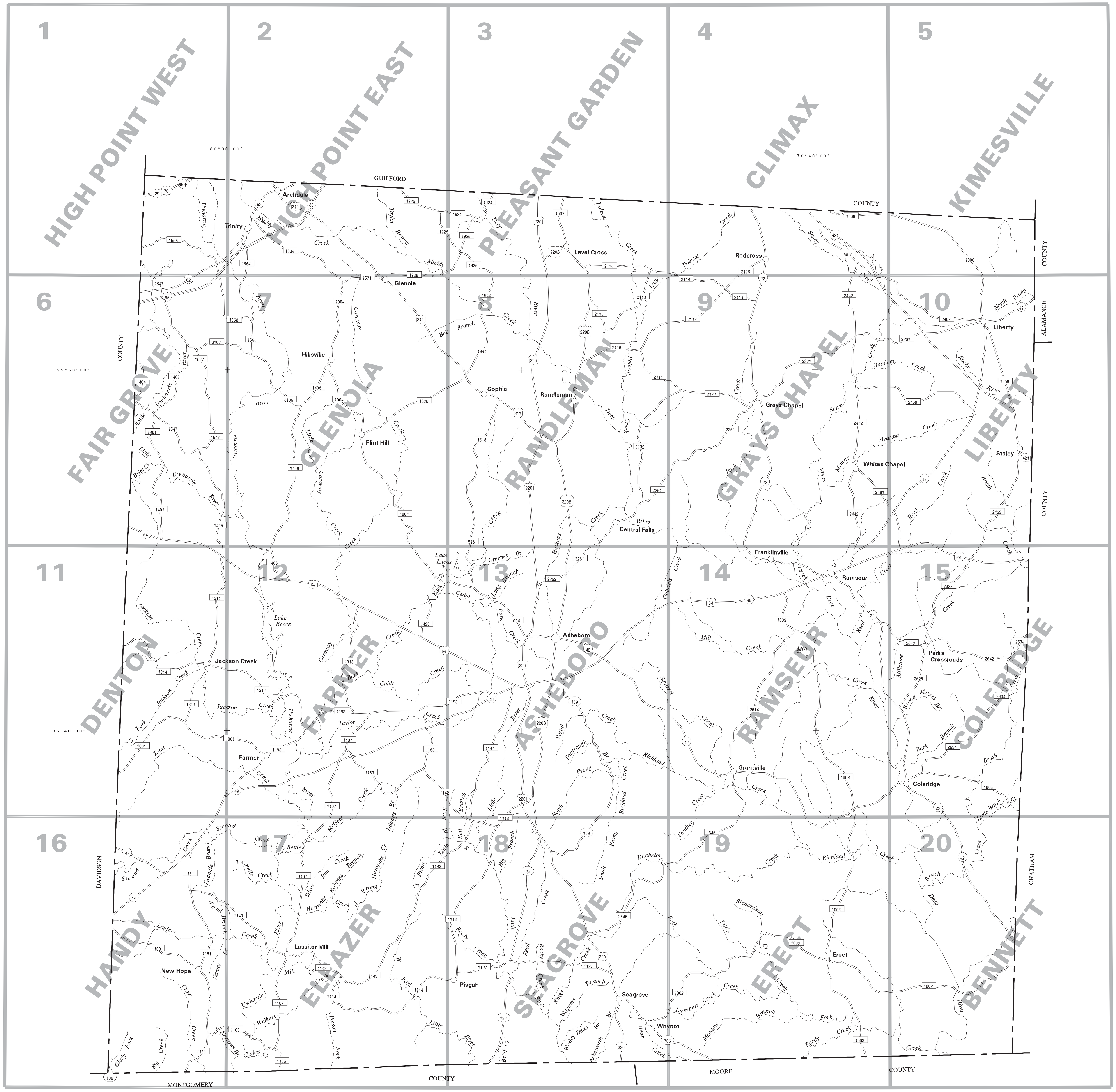
GENERAL SOIL MAP
RANDOLPH COUNTY, NORTH CAROLINA

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:115000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



INDEX TO MAP SHEETS
RANDOLPH COUNTY, NORTH CAROLINA

MILES

KILOMETERS

SCALE = 1:115000

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE AND FOREST SERVICE

RANDOLPH COUNTY, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE
NORTH CAROLINA COOPERATIVE EXTENSION SERVICE
RANDOLPH SOIL AND WATER CONSERVATION DISTRICT
RANDOLPH COUNTY BOARD OF COMMISSIONERS

SOIL LEGEND

SYMBOL	NAME
ApB	Appling sandy loam, 2 to 6 percent slopes
ApC	Appling sandy loam, 6 to 10 percent slopes
BaB	Badin-Tarrus complex, 2 to 8 percent slopes
BaC	Badin-Tarrus complex, 8 to 15 percent slopes
BaD	Badin-Tarrus complex, 15 to 25 percent slopes
BaE	Badin-Tarrus complex, 25 to 45 percent slopes
BtB2	Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded
BtC2	Badin-Tarrus complex, 8 to 15 percent slopes, moderately eroded
CaB	Callison-Lignum complex, 2 to 6 percent slopes
CbC	Callison-Misenheimer complex, 6 to 10 percent slopes
CcB	Cecil sandy loam, 2 to 8 percent slopes
CcC	Cecil sandy loam, 8 to 15 percent slopes
CeB2	Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded
CfA	Chenneby silt loam, 0 to 2 percent slopes, frequently flooded
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded
CmA	Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded
CnB2	Coronaca clay loam, 2 to 8 percent slopes, moderately eroded
CnC2	Coronaca clay loam, 8 to 15 percent slopes, moderately eroded
DaB	Davidson loam, 2 to 8 percent slopes
DoB	Dogue sandy loam, 2 to 6 percent slopes, occasionally flooded
GaB	Georgeville silt loam, 2 to 8 percent slopes
GaC	Georgeville silt loam, 8 to 15 percent slopes
GbC	Georgeville silt loam, 4 to 15 percent slopes, extremely stony
GdE	Georgeville silt loam, 15 to 45 percent slopes, extremely bouldery
GeB2	Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded
GeC2	Georgeville silty clay loam, 8 to 15 percent slopes, moderately eroded
GgB	Georgeville gravelly silt loam, 2 to 8 percent slopes
GgC	Georgeville gravelly silt loam, 8 to 15 percent slopes
GmC	Georgeville-Urban land complex, 2 to 10 percent slopes
GoC	Goldston very channery silt loam, 4 to 15 percent slopes
GoE	Goldston very channery silt loam, 15 to 50 percent slopes
HeB	Helena sandy loam, 2 to 6 percent slopes
HeC	Helena sandy loam, 6 to 10 percent slopes
MaC	Mecklenburg loam, 8 to 15 percent slopes
MaD	Mecklenburg loam, 15 to 25 percent slopes
MeB2	Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded
MeC2	Mecklenburg clay loam, 8 to 15 percent slopes, moderately eroded
MkC	Mecklenburg-Urban land complex, 2 to 10 percent slopes
PaC	Pacolet fine sandy loam, 8 to 15 percent slopes
PaD	Pacolet fine sandy loam, 15 to 30 percent slopes
Pt	Pits, quarry
RnC	Rion loamy sand, 8 to 15 percent slopes
RnD	Rion loamy sand, 15 to 25 percent slopes
RvA	Riverview sandy loam, 0 to 2 percent slopes, frequently flooded
ShA	Shellbluff silt loam, 0 to 2 percent slopes, occasionally flooded
StB	State silt loam, 2 to 6 percent slopes
Ud	Udorthents, loamy
VaB	Vance sandy loam, 2 to 8 percent slopes
VaC	Vance sandy loam, 8 to 15 percent slopes
W	Water
WpC	Wilkes-Poindexter-Wynott complex, 8 to 15 percent slopes
WpE	Wilkes-Poindexter-Wynott complex, 15 to 45 percent slopes
WtB	Wynott-Enon complex, 2 to 8 percent slopes
WtC	Wynott-Enon complex, 8 to 15 percent slopes
WtD	Wynott-Enon complex, 15 to 25 percent slopes
WvB2	Wynott-Enon complex, 2 to 8 percent slopes, moderately eroded
WvC2	Wynott-Enon complex, 8 to 15 percent slopes, moderately eroded
WyC	Wynott-Enon complex, 4 to 15 percent slopes, extremely bouldery
WyE	Wynott-Enon complex, 15 to 45 percent slopes, extremely bouldery
WzB	Wynott-Wilkes-Poindexter complex, 2 to 8 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

SOIL SURVEY FEATURES

SOIL DELINEATIONS AND SYMBOLS — ApB CaB

LANDFORM FEATURES

- Gravelly spot
- Gully
- Mine or quarry
- Miscellaneous water
- Perennial water
- Rock outcrop
- Severely eroded spot
- Short steep slope
- Stony spot
- Very stony spot
- Wet spot

AD HOC FEATURES

- Bouldery spot

CULTURAL FEATURES

BOUNDARIES

- County or parish
- Field sheet matchline & neatline

TRANSPORTATION

- Divided road
- Other road

ROAD EMBLEMS

- Interstate — 173
- Federal — 287
- State — 52
- County — 1283

LOCATED OBJECTS

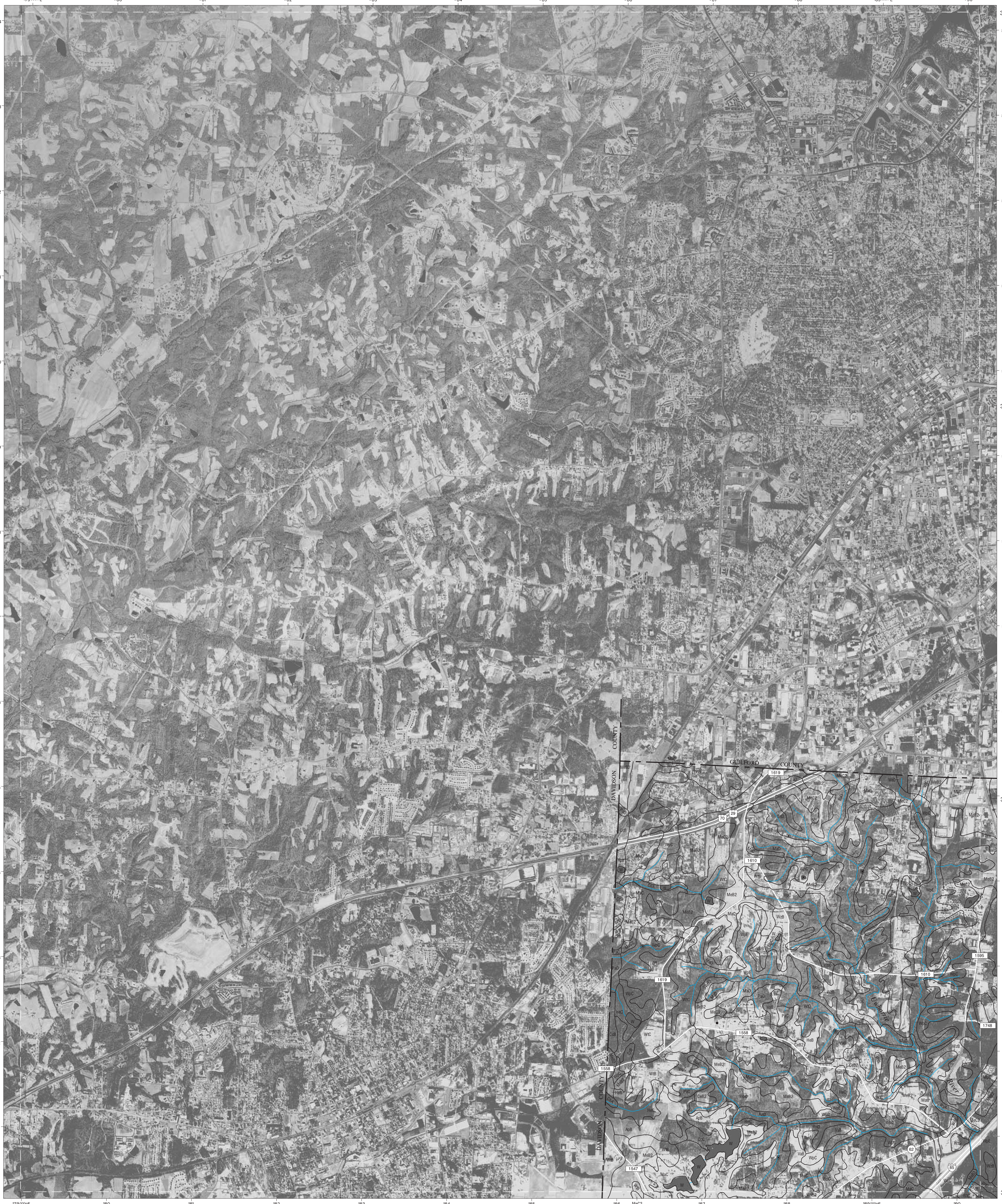
- Airport, airfield
- Cemetery
- Church
- School
- Soil sample site

HYDROGRAPHIC FEATURES

- Unclassified stream
- Drainage end (indicates direction of flow)

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
HIGH POINT WEST QUADRANGLE
SHEET NUMBER 1 OF 20



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1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

		2
	6	7

2 HIGH POINT EAST
6 FAIR GROVE
7 GLENOLA

INDEX TO ADJOINING 7.5 MAPS

HIGH POINT WEST, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 20

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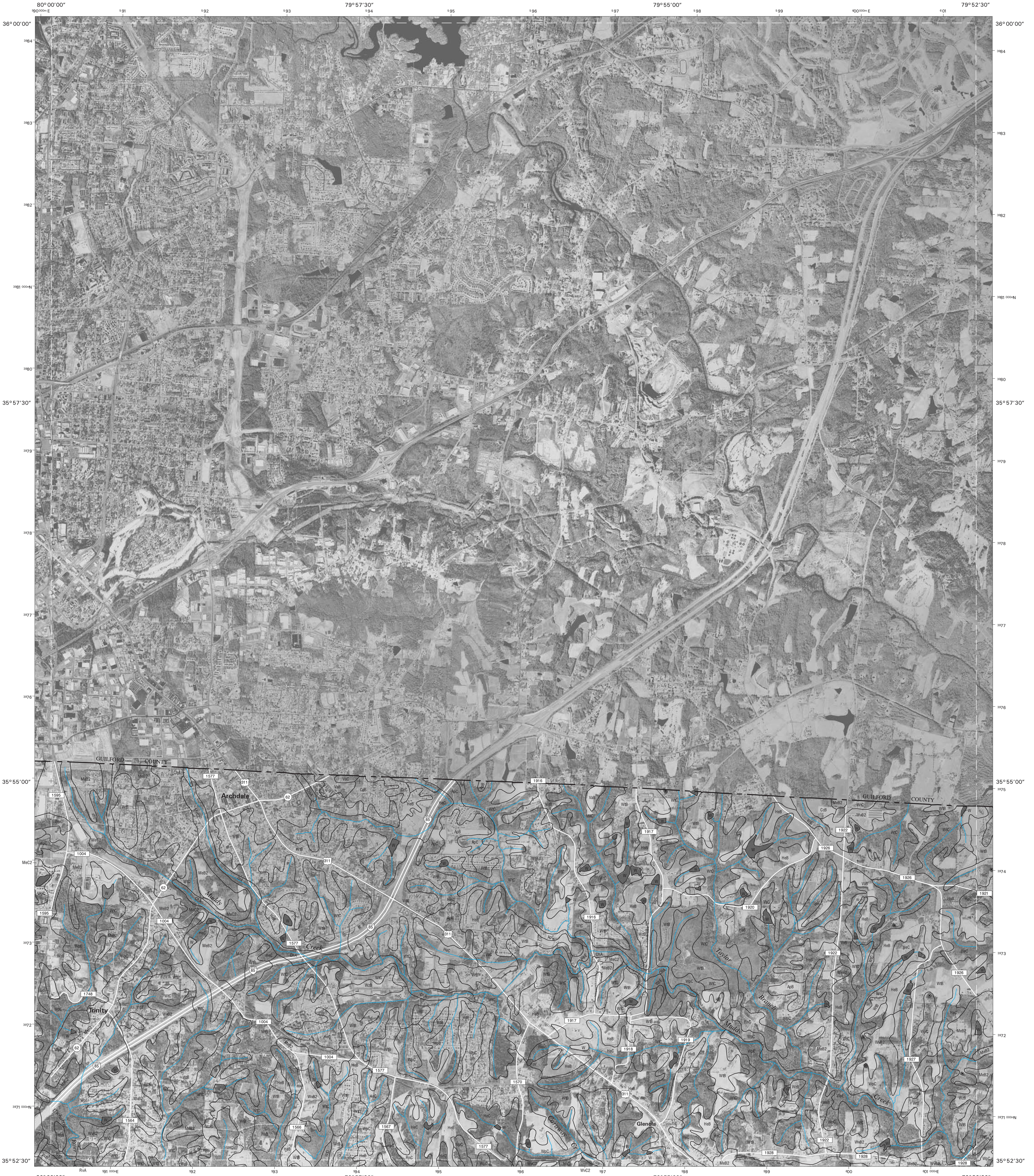

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MILES

FEET

KILOMETERS

NORTH

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1 HIGH POINT WEST
3 PLEASANT GARDEN
6 FAIR GROVE
7 GLENOLA
8 RANDLEMAN

INDEX TO ADJOINING 7.5 MAPS

HIGH POINT EAST, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 20

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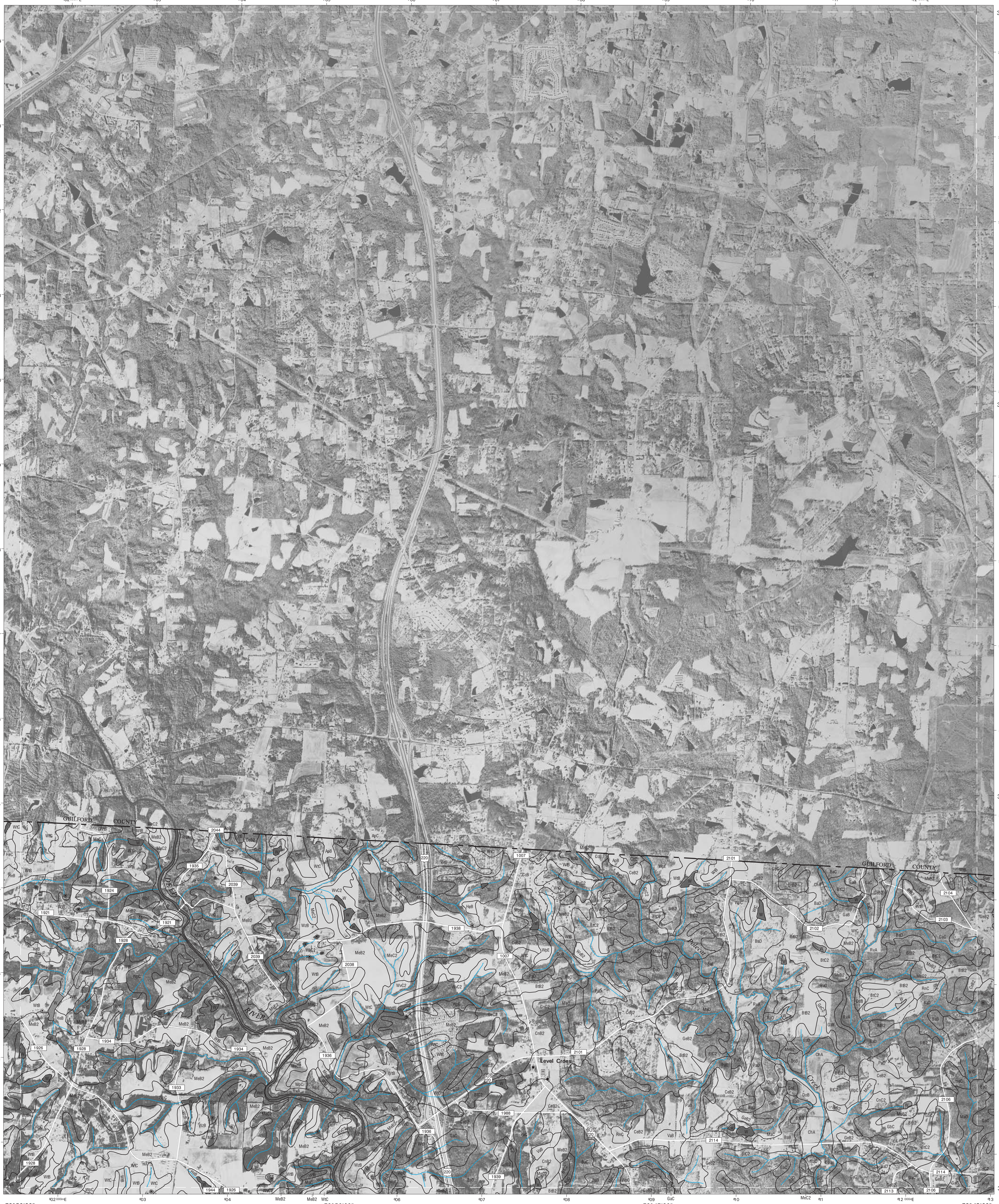
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
PLEASANT GARDEN QUADRANGLE
SHEET NUMBER 3 OF 20



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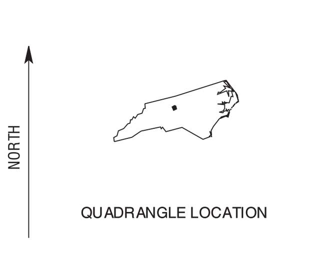
1000-meter ticks: Universal Transverse Mercator, zone 17.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

2 HIGH POINT EAST
4 CLIMAX
7 GLENOLA
8 RANDLEMAN
9 GRAYS CHAPEL

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PLEASANT GARDEN, NORTH CAROLINA
7.5 MINUTE SERIES
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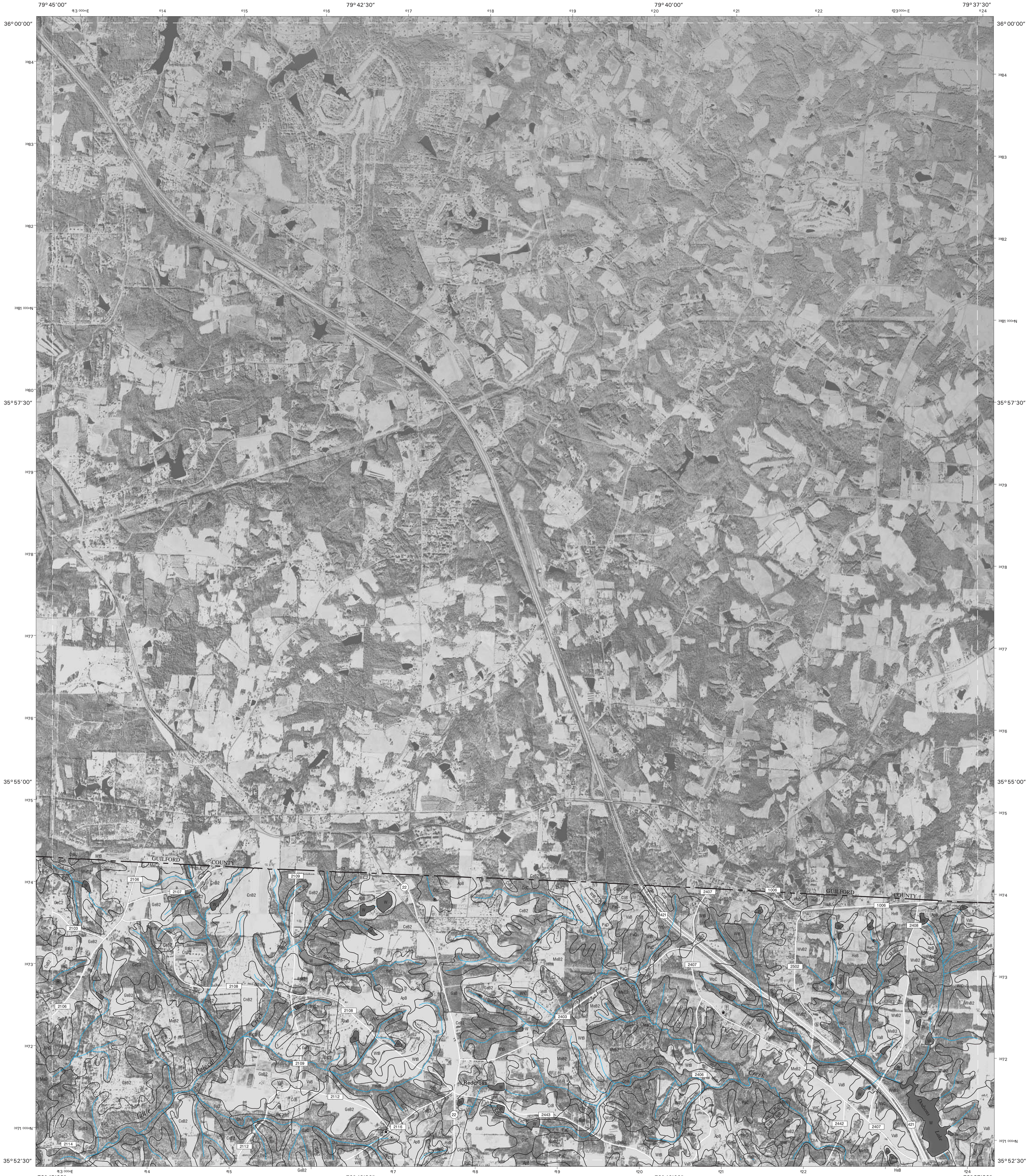
RANDOLPH COUNTY, NORTH CAROLINA
CLIMAX QUADRANGLE
SHEET NUMBER 4 OF 20



SCALE 1:24000

MILES

FEET

KILOMETERS

QUADRANGLE LOCATION

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3 PLEASANT GARDEN
5 KIMESVILLE
8 RANDLEMAN
9 GRAYS CHAPEL
10 LIBERTY

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CLIMAX, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 20

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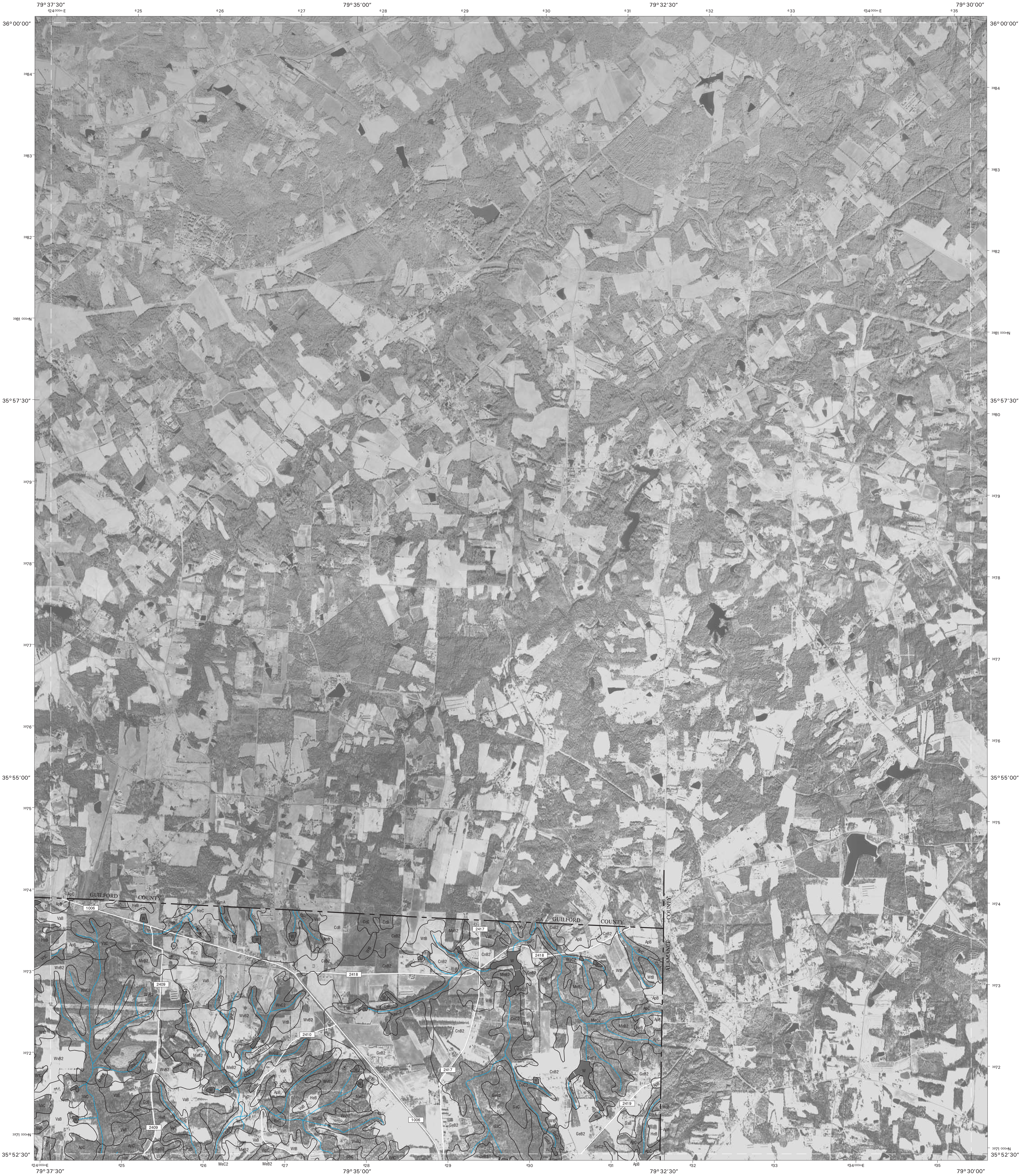
RANDOLPH COUNTY, NORTH CAROLINA
KIMESVILLE QUADRANGLE
SHEET NUMBER 5 OF 20



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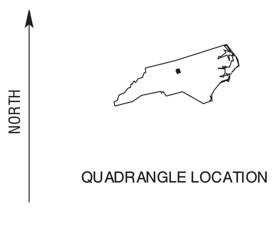

QUADRANGLE LOCATION

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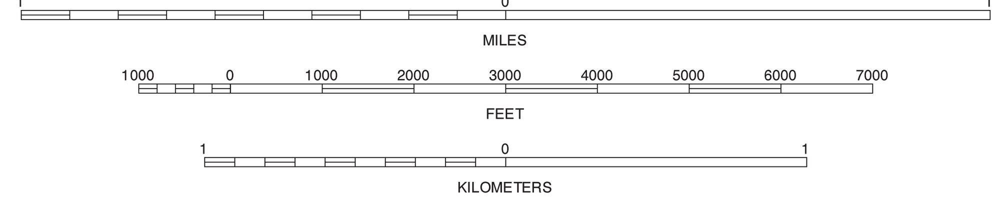

4	■	
9	10	

4 CLIMAX
9 GRAYS CHAPEL
10 LIBERTY

INDEX TO ADJOINING 7.5 MAPS

KIMESVILLE, NORTH CAROLINA
7.5 MINUTE SERIES
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UNITED STATES
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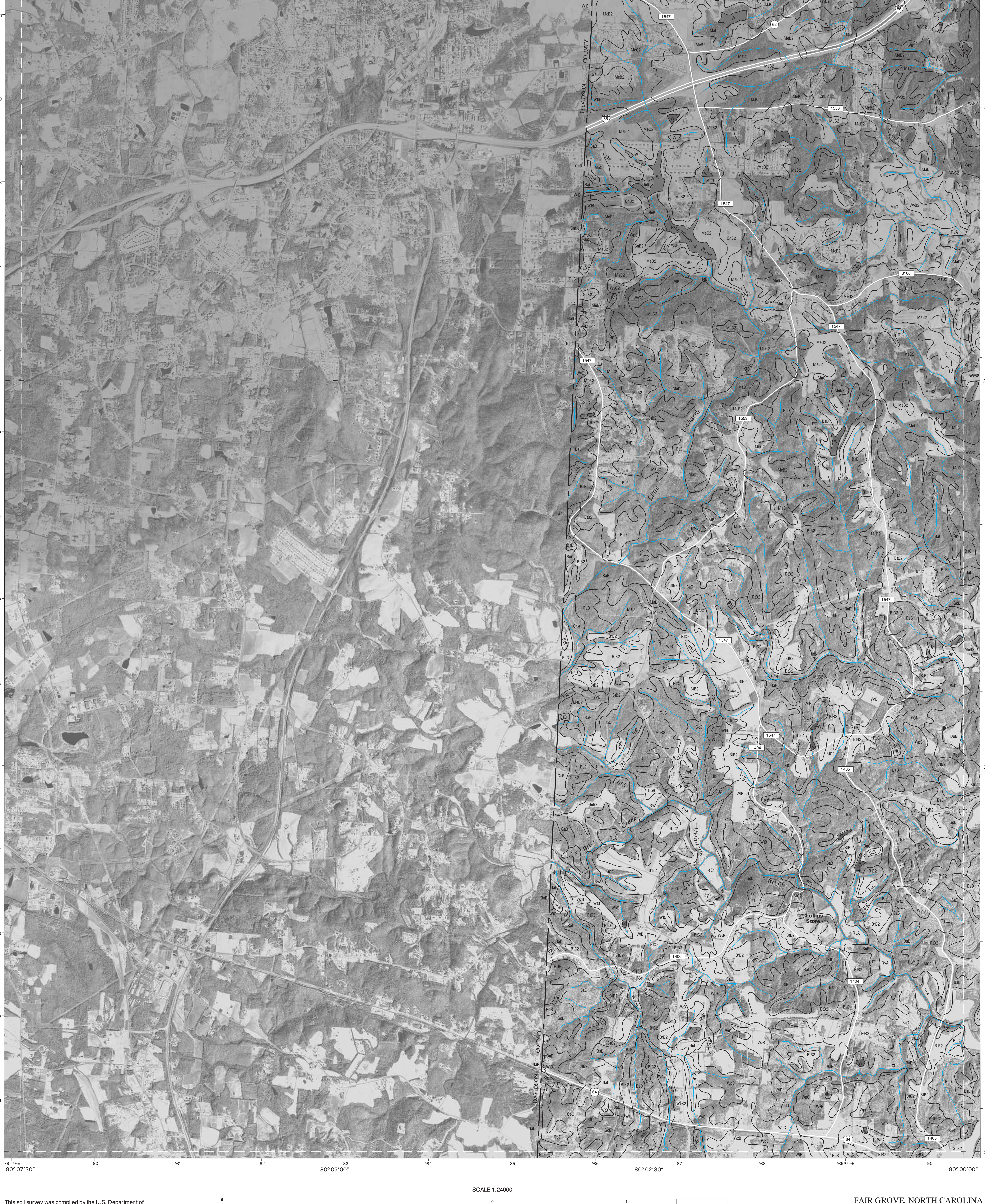
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
FAIR GROVE QUADRANGLE
SHEET NUMBER 6 OF 20



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MILES

FEET

KILOMETERS

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NORTH

QUADRANGLE LOCATION

1 HIGH POINT WEST
2 HIGH POINT EAST
7 GLENOLA
11 DENTON
12 FARMER

INDEX TO ADJOINING 7.5 MAPS

FAIR GROVE, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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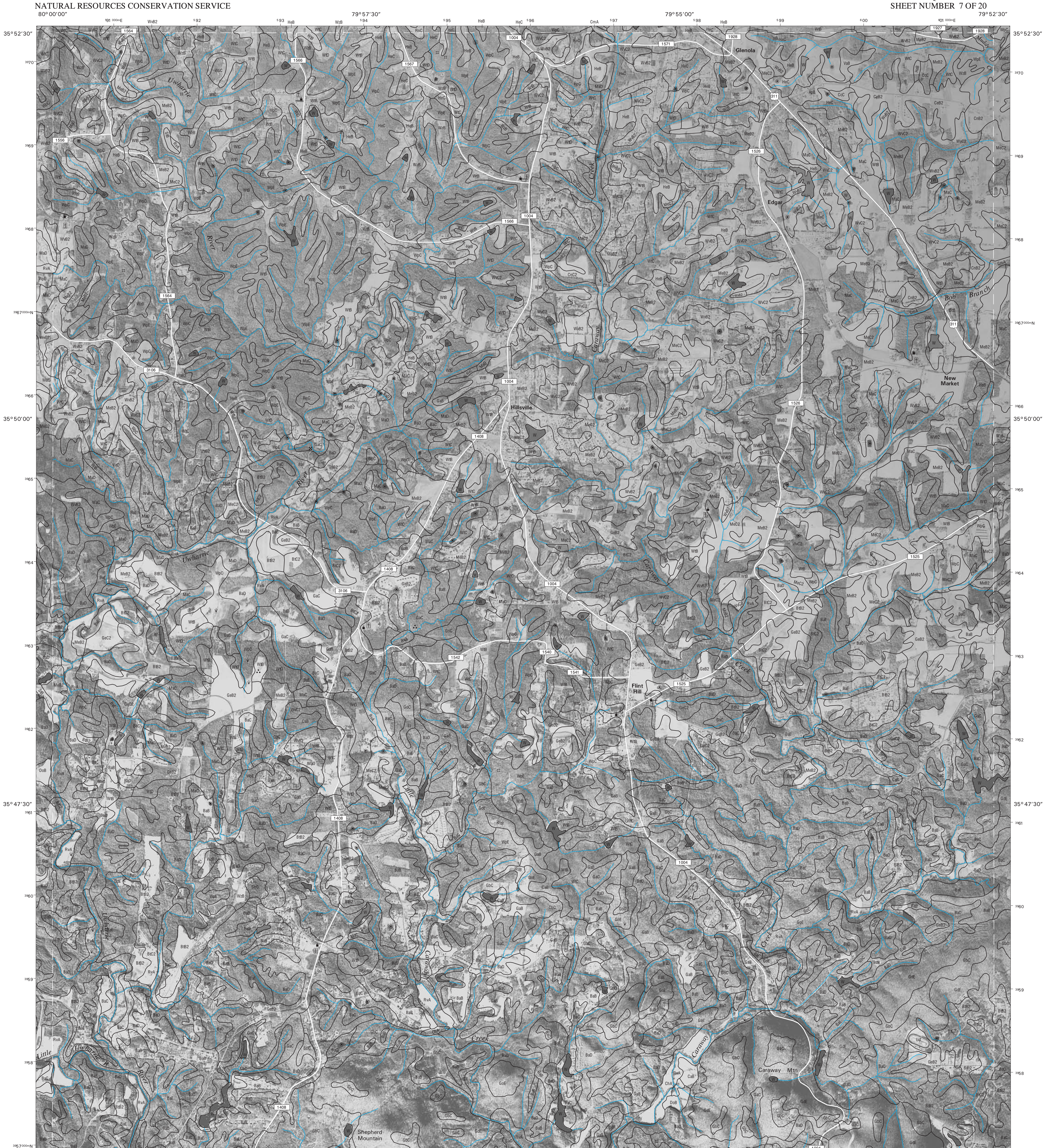
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
GLENOLA QUADRANGLE
SHEET NUMBER 7 OF 20



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MILES

FEET

KILOMETERS

NORTH

QUADRANGLE LOCATION

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1	2	3
6		8
11	12	13

1 HIGH POINT WEST
2 HIGH POINT EAST
3 PLEASANT GARDEN
6 FAIR GROVE
8 RANDLEMAN
11 DENTON
12 FARMER
13 ASHEBORO

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GLENOLA, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 20

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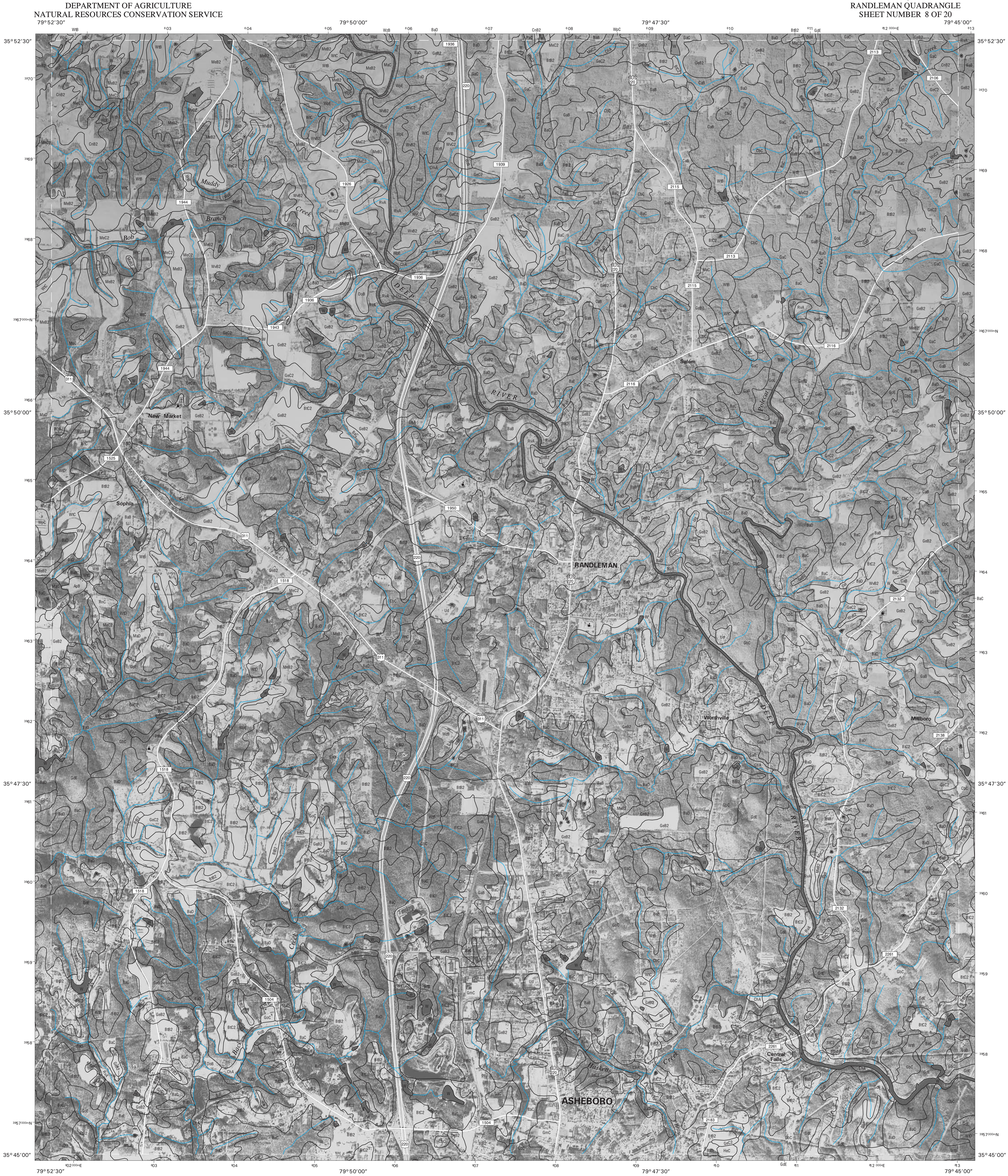
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
RANDLEMAN QUADRANGLE
SHEET NUMBER 8 OF 20



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

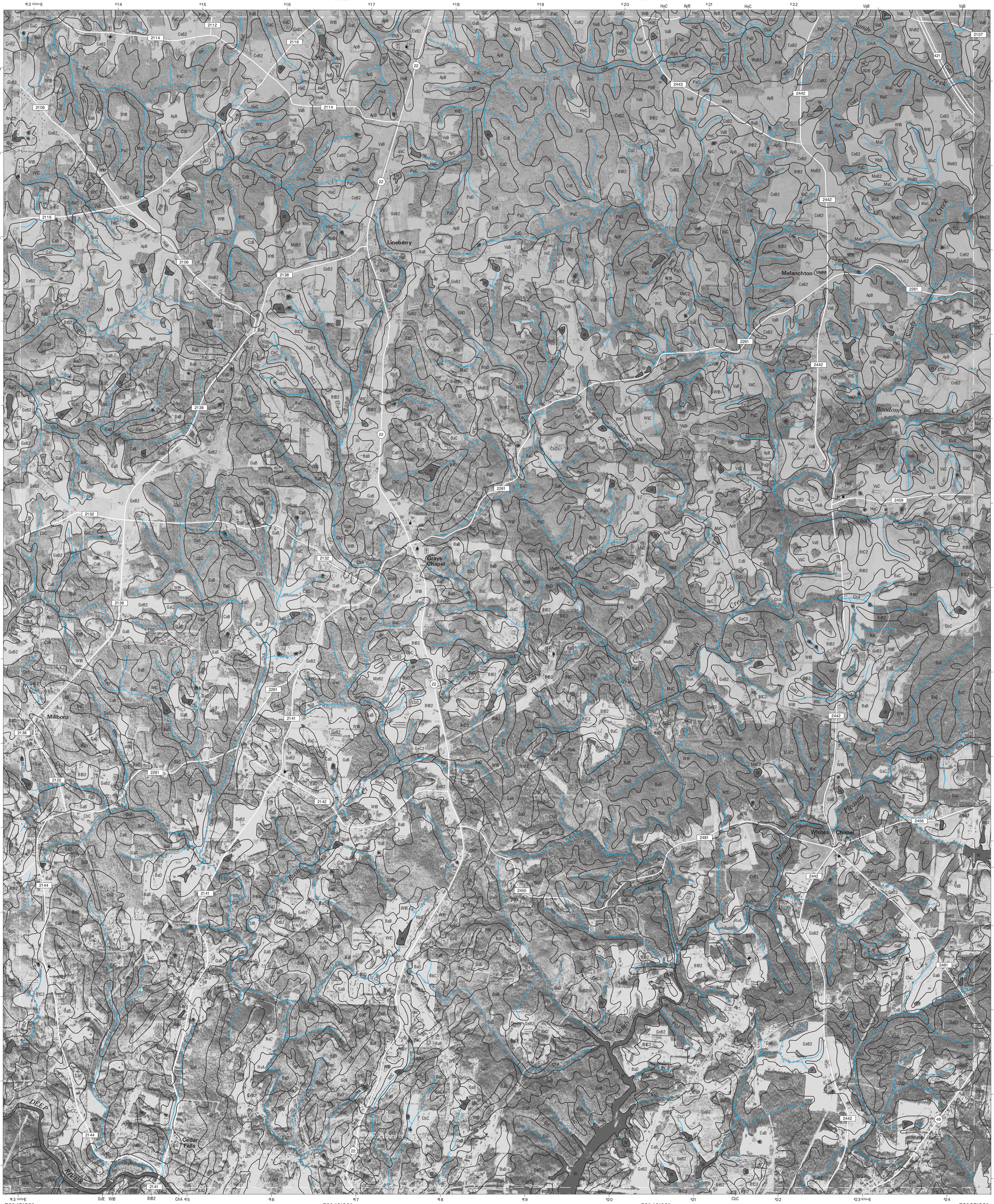
2	3	4
7		9
12	13	14

2 HIGH POINT EAST
3 PLEASANT GARDEN
4 CLIMAX
7 GLENOLA
9 GRAYS CHAPEL
12 FARMER
13 ASHEBORO
14 RAMSEUR

INDEX TO ADJOINING 7.5 MAPS

RANDLEMAN, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

3	4	5
8		10
13	14	15

3 PLEASANT GARDEN
4 CLIMAX
5 KIMESVILLE
8 RANDLEMAN
10 LIBERTY
13 ASHEBORO
14 RAMSEUR
15 COLERIDGE

INDEX TO ADJOINING 7.5 MAPS

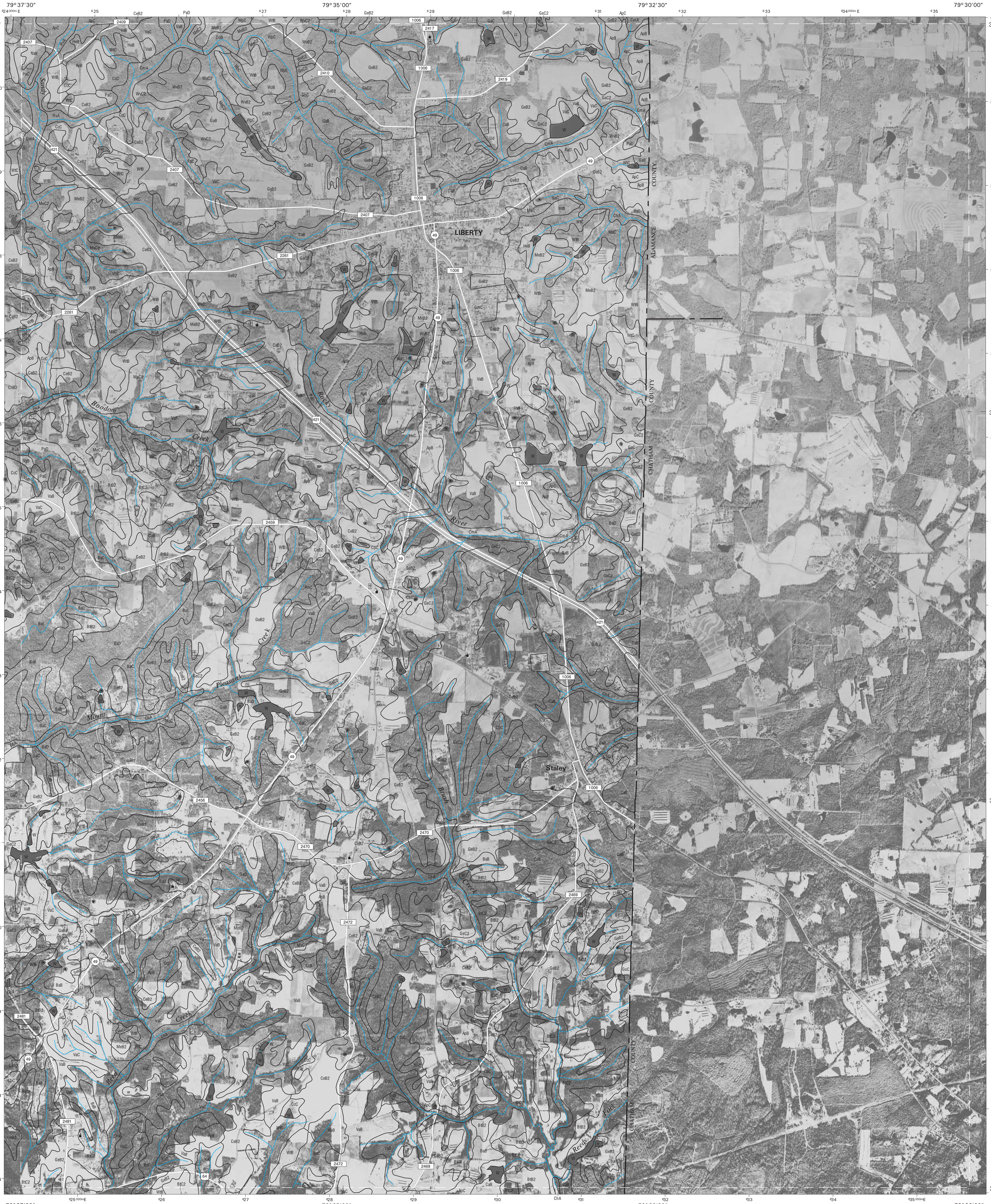
GRAYS CHAPEL, NORTH CAROLINA

7.5 MINUTE SERIES
SHEET NUMBER 9 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
LIBERTY QUADRANGLE
SHEET NUMBER 10 OF 20



SCALE 1:24000

MILES

FEET

KILOMETERS

NORTH

QUADRANGLE LOCATION

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

4	5	
9		
14	15	

4 CLIMAX
5 KIMESVILLE
9 GRAYS CHAPEL
14 RAMSEUR
15 COLERIDGE

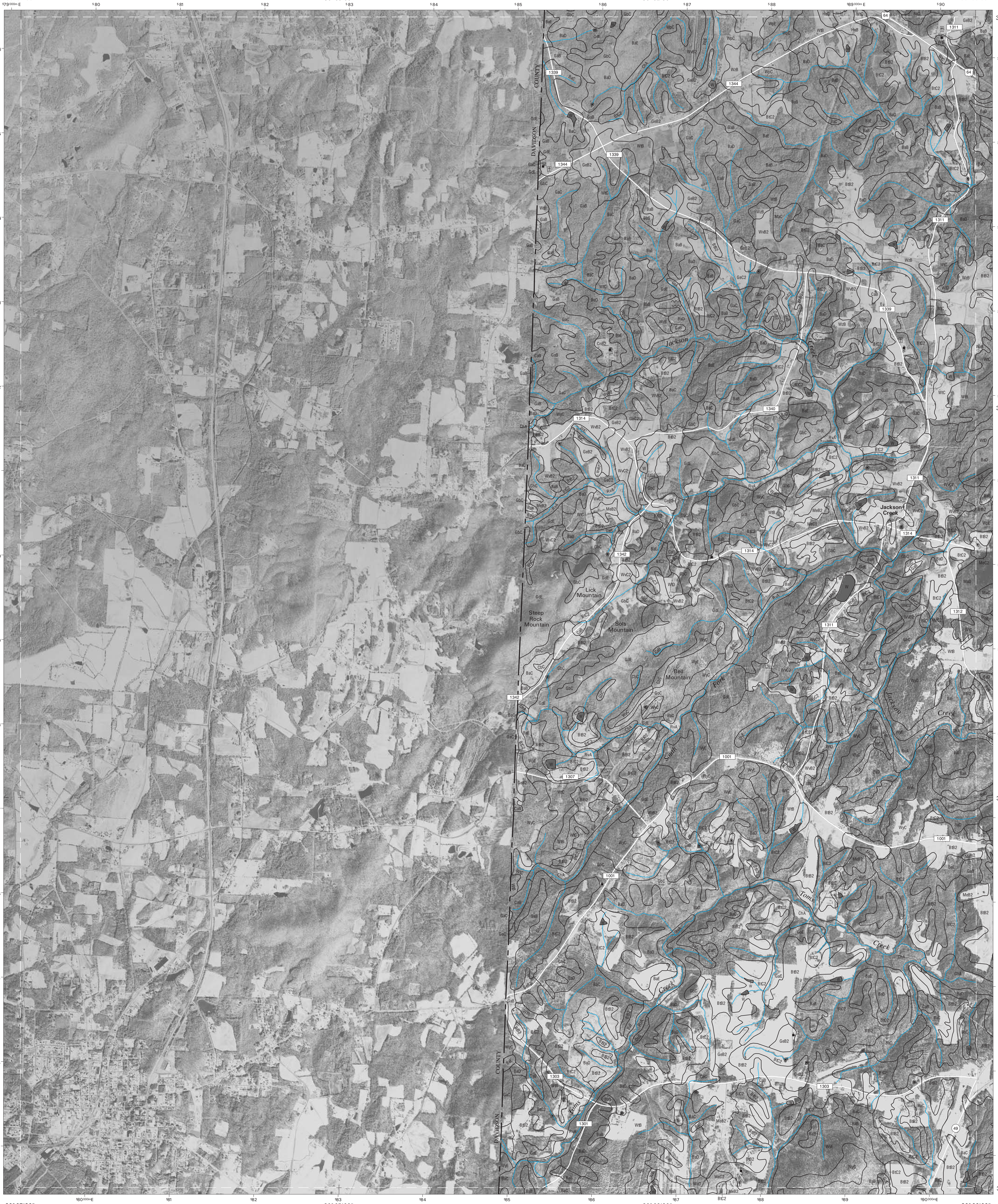
INDEX TO ADJOINING 7.5 MAPS

LIBERTY, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
DENTON QUADRANGLE
SHEET NUMBER 11 OF 20



SCALE 1:24000

MILES

FEET

KILOMETERS

NORTH

QUADRANGLE LOCATION

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

6 FAIR GROVE
7 GLENOLA
12 FARMER
16 HANDY
17 ELEAZER

INDEX TO ADJOINING 7.5 MAPS

DENTON, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 20

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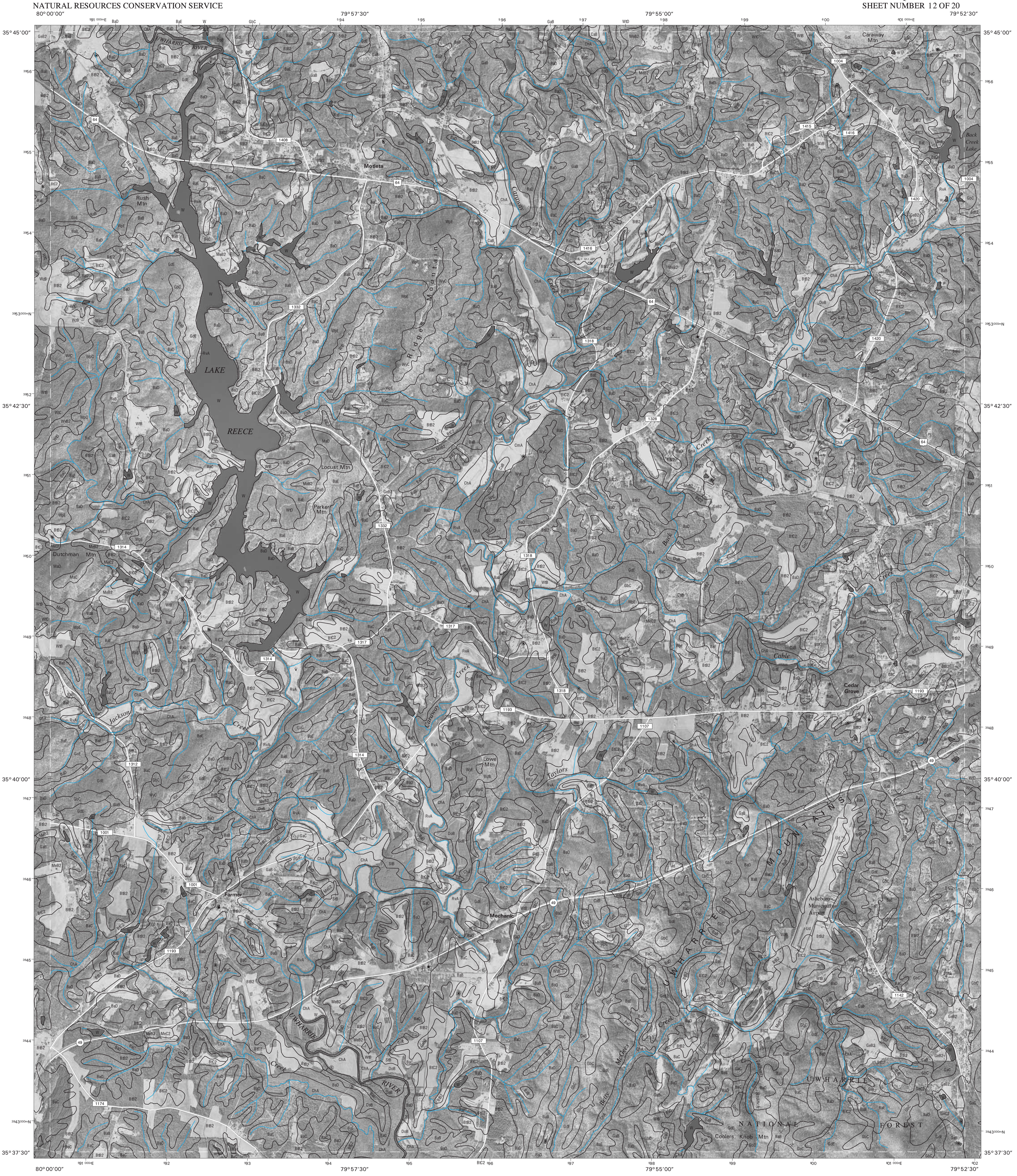
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
FARMER QUADRANGLE
SHEET NUMBER 12 OF 20



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

6	7	8
11		13
16	17	18

6 FAIR GROVE
7 GLENOLA
8 RANDLEMAN
11 DENTON
13 ASHEBORO
16 HANDY
17 ELEAZER
18 SEAGROVE

INDEX TO ADJOINING 7.5 MAPS

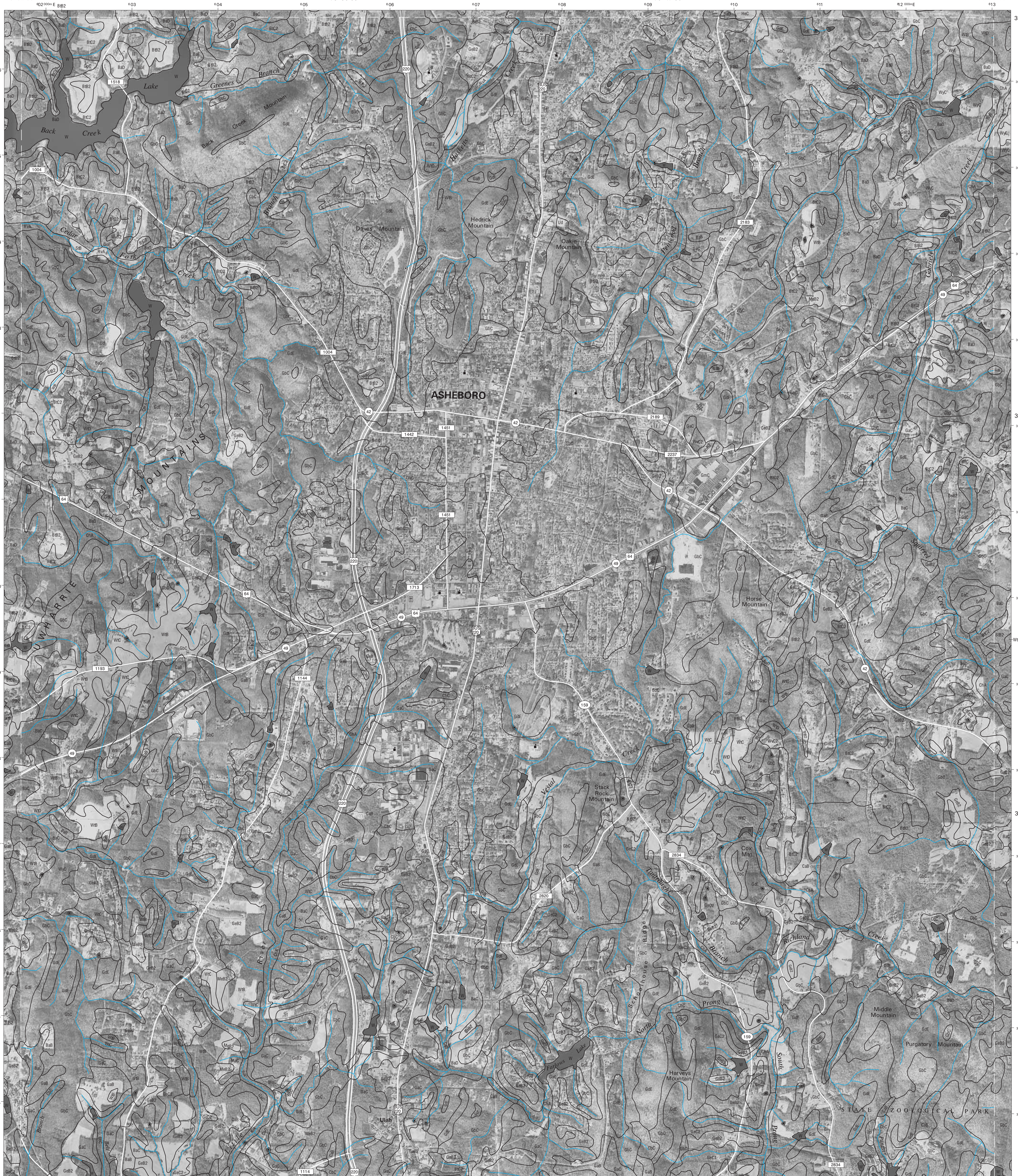
FARMER, NORTH CAROLINA

7.5 MINUTE SERIES
SHEET NUMBER 12 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
ASHEBORO QUADRANGLE
SHEET NUMBER 13 OF 20



SCALE 1:24000

MILES

FEET

KILOMETERS

NORTH

QUADRANGLE LOCATION

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

7	8	9
12		14
17	18	19

7 GLENOLA
8 RANDLEMAN
9 GRAYS CHAPEL
12 FARMER
14 RAMSEUR
17 ELEAZER
18 SEAGROVE
19 ERECT

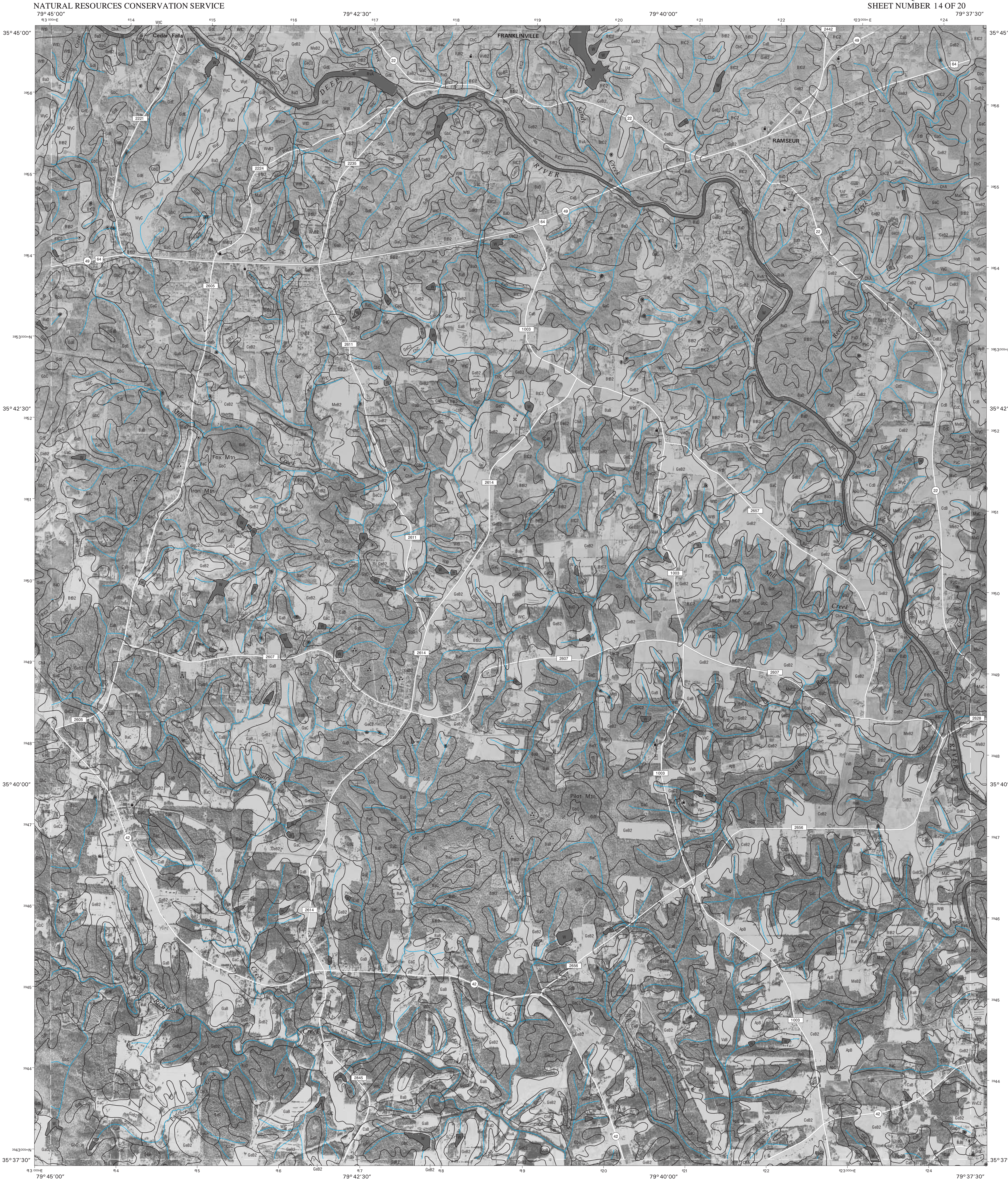
INDEX TO ADJOINING 7.5 MAPS

ASHEBORO, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
RAMSEUR QUADRANGLE
SHEET NUMBER 14 OF 20



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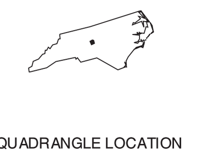
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

8	9	10
13		15
18	19	20

8 RANDLEMAN
9 GRAYS CHAPEL
10 LIBERTY
13 ASHEBORO
15 COLERIDGE
18 SEAGROVE
19 ERECT
20 BENNETT

INDEX TO ADJOINING 7.5 MAPS

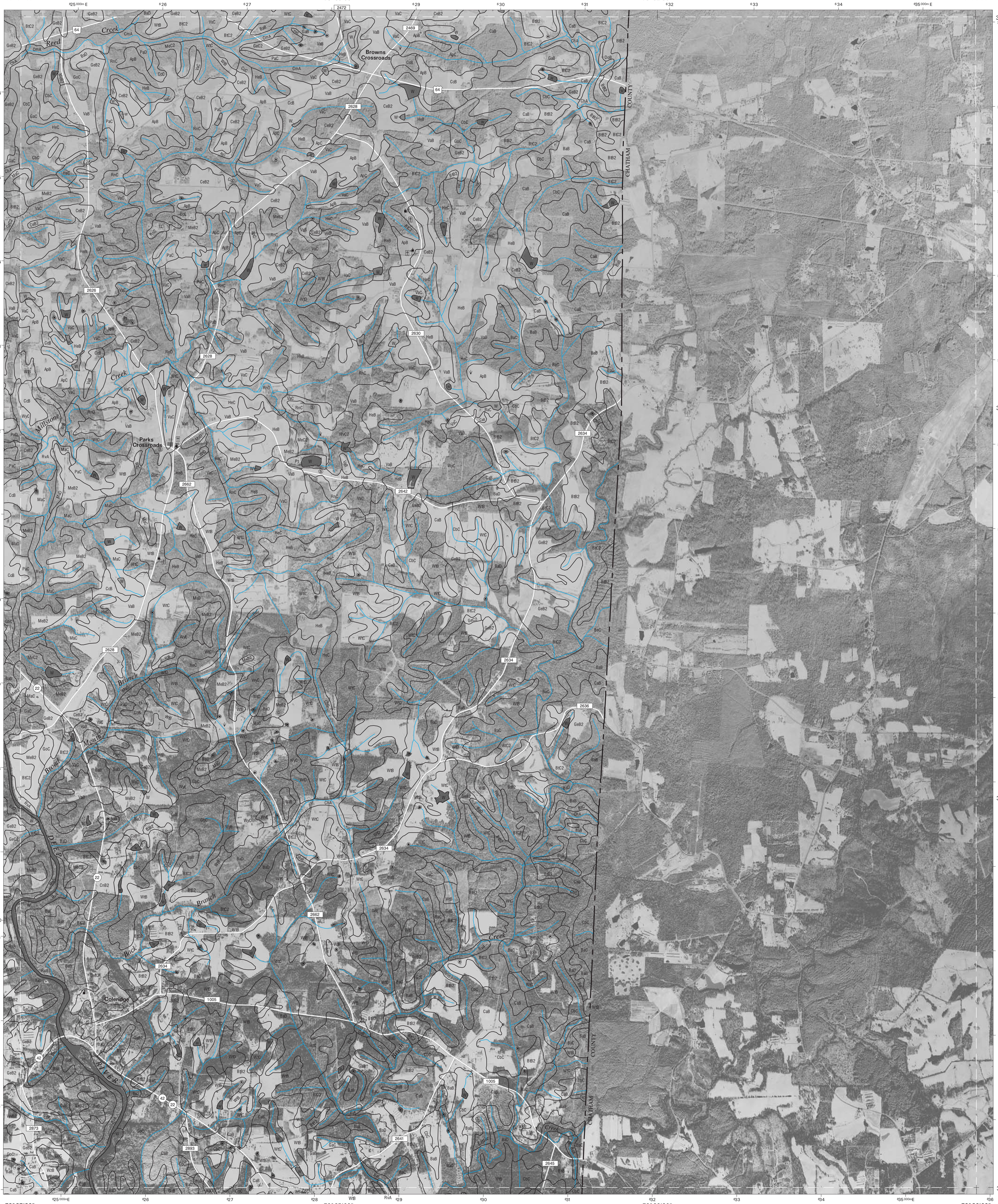
RAMSEUR, NORTH CAROLINA

7.5 MINUTE SERIES
SHEET NUMBER 14 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
COLERIDGE QUADRANGLE
SHEET NUMBER 15 OF 20



SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

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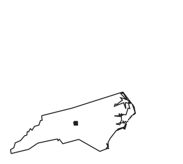
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

9	10	
14		
19	20	

9 GRAYS CHAPEL
10 LIBERTY
14 RAMSEUR
19 ERECT
20 BENNETT

INDEX TO ADJOINING 7.5 MAPS

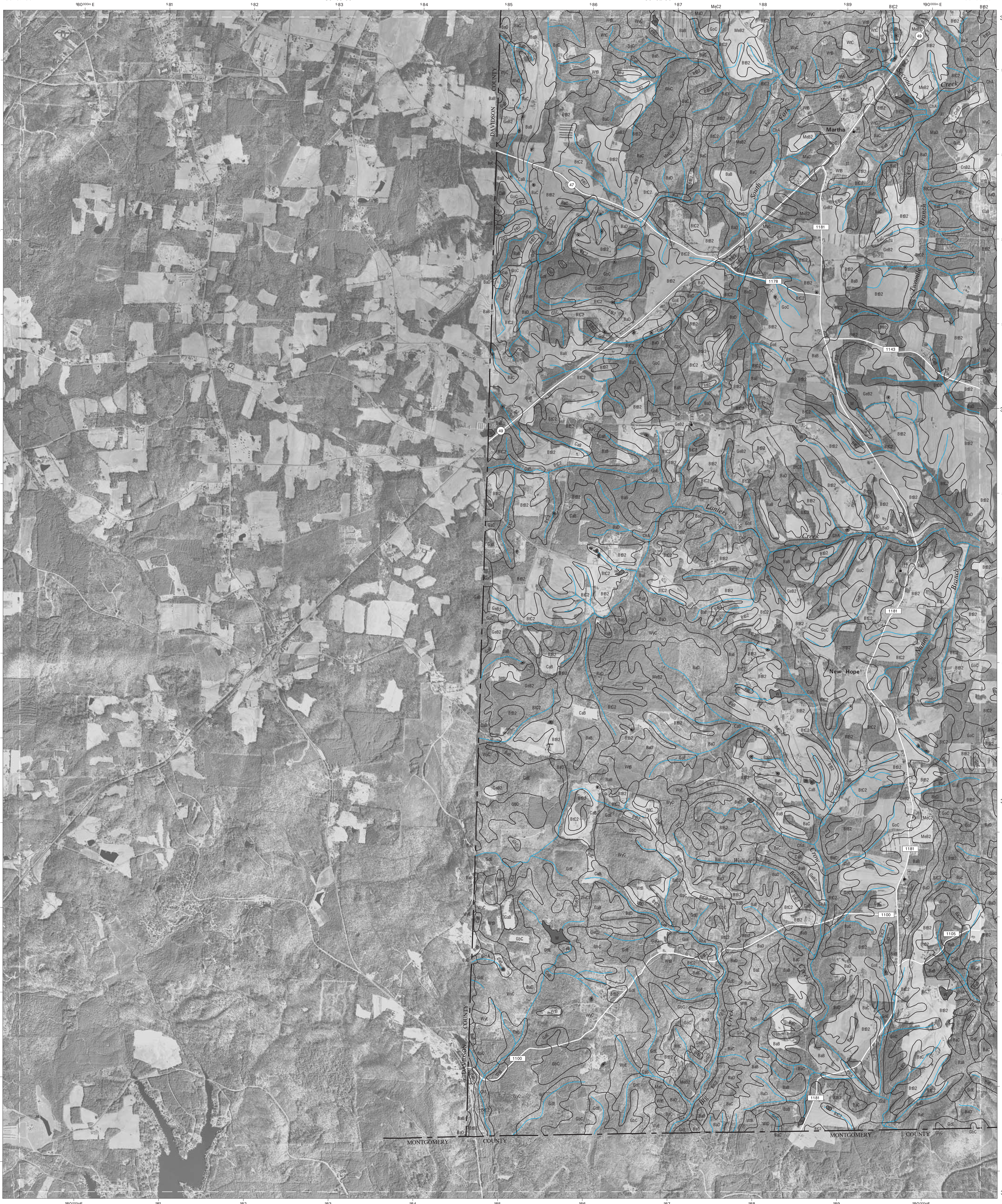
COLERIDGE, NORTH CAROLINA

7.5 MINUTE SERIES
SHEET NUMBER 15 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
HANDY QUADRANGLE
SHEET NUMBER 16 OF 20



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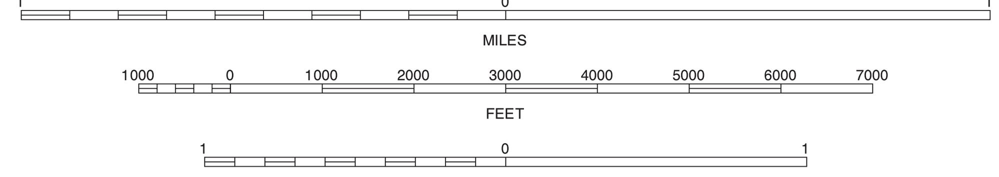

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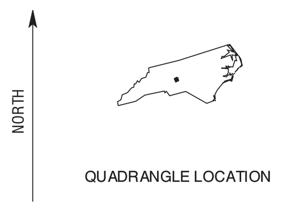
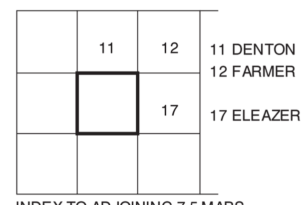
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



INDEX TO ADJOINING 7.5 MAPS

HANDY, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 20

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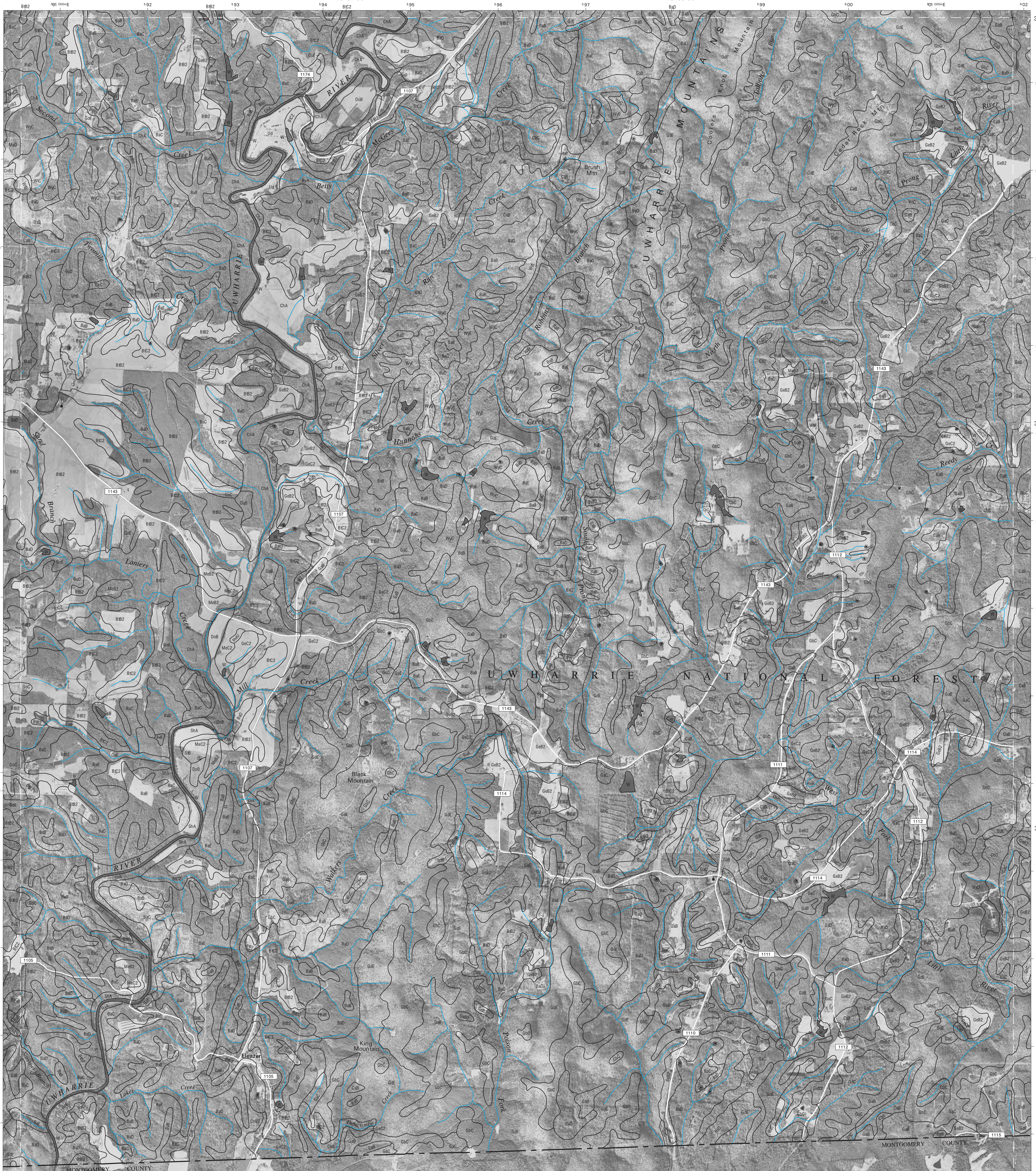
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
ELEAZER QUADRANGLE
SHEET NUMBER 17 OF 20



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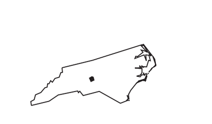
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

11	12	13
16		18

11 DENTON
12 FARMER
13 ASHEBORO
16 HANDY
18 SEAGROVE

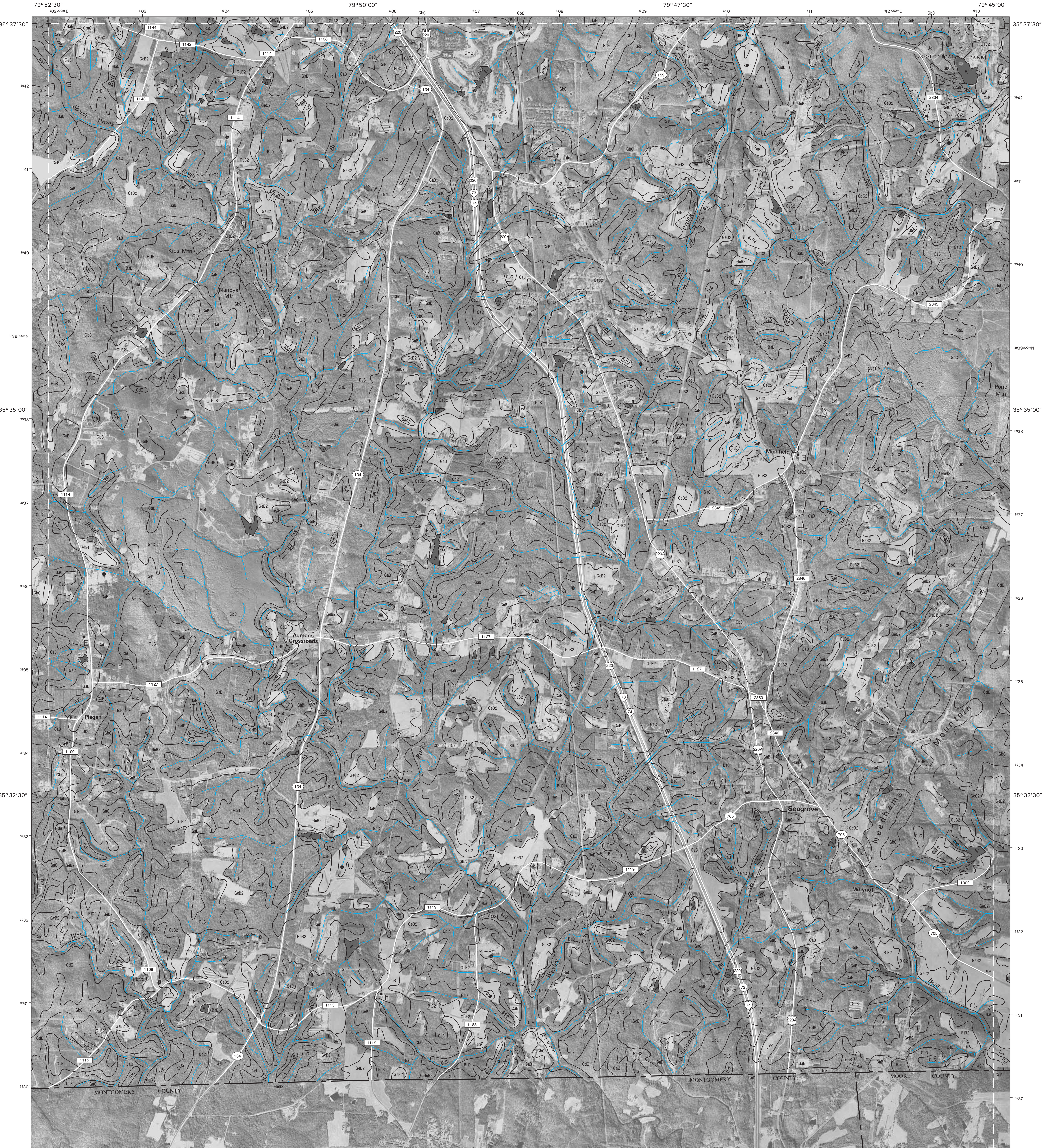
INDEX TO ADJOINING 7.5 MAPS

ELEAZER, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 20

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
SEAGROVE QUADRANGLE
SHEET NUMBER 18 OF 20



SCALE 1:24000

MILES

FEET

KILOMETERS

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NORTH

QUADRANGLE LOCATION

12	13	14
17		19

12 FARMER
13 ASHEBORO
14 RAMSEUR
17 ELEAZER
19 ERECT

INDEX TO ADJOINING 7.5 MAPS

SEAGROVE, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 20

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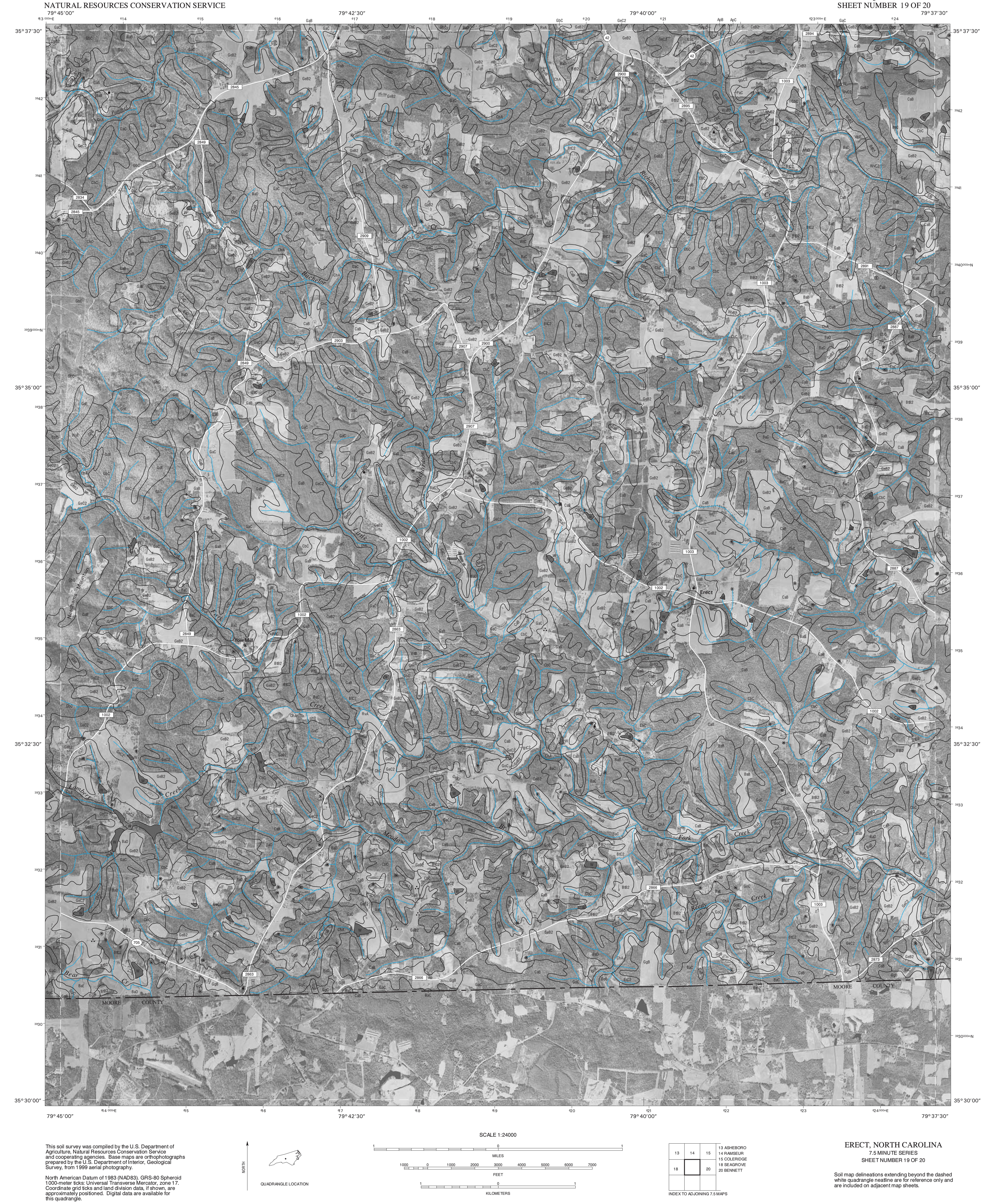
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
ERECT QUADRANGLE
SHEET NUMBER 19 OF 20



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

ERECT, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 20

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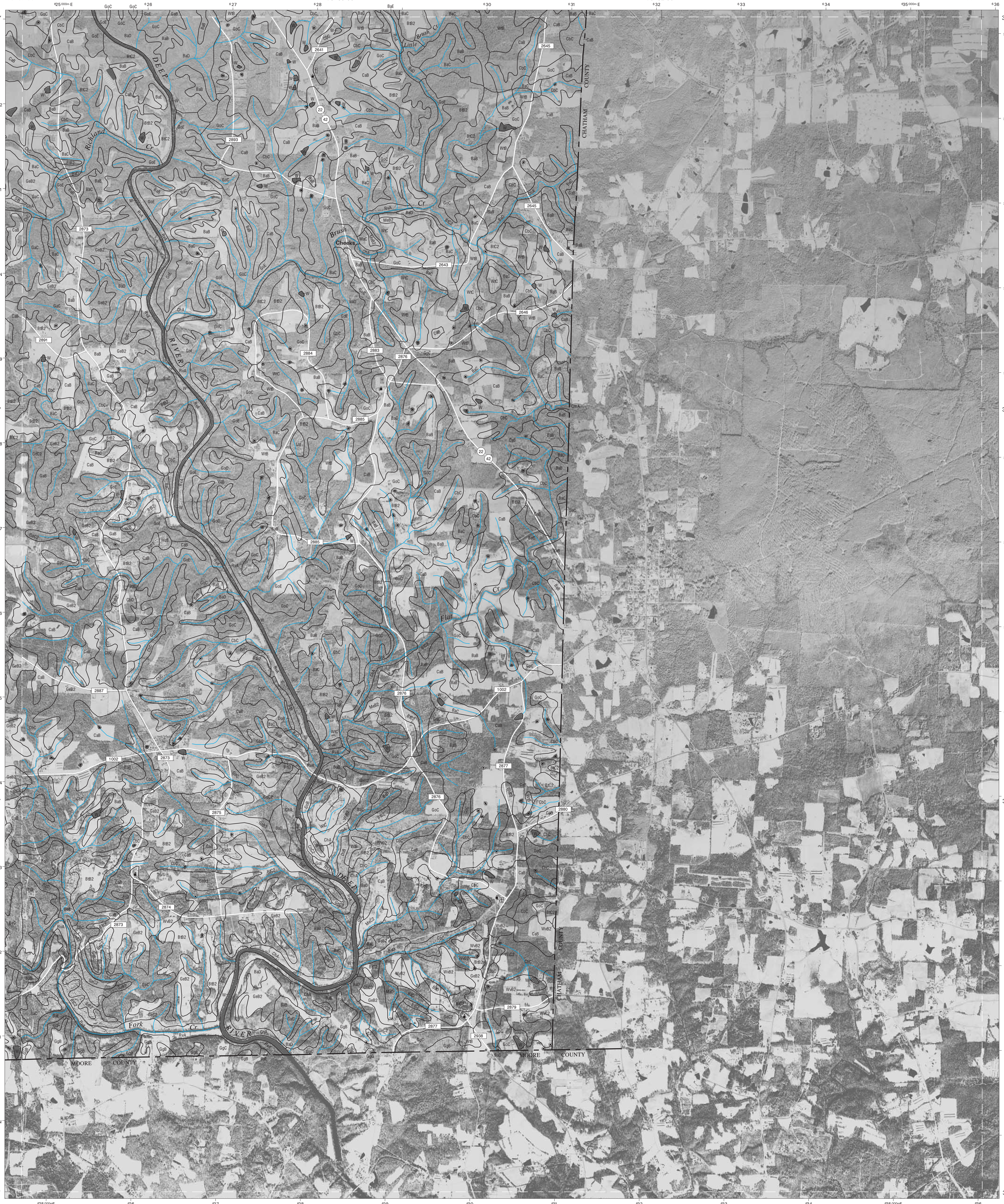
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RANDOLPH COUNTY, NORTH CAROLINA
BENNETT QUADRANGLE
SHEET NUMBER 20 OF 20

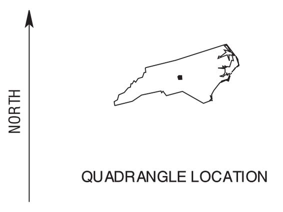


SCALE 1:24000

MILES

FEET

KILOMETERS



QUADRANGLE LOCATION

14	15	
19		

14 RAMSEUR
15 COLERIDGE
19 ERECT

INDEX TO ADJOINING 7.5 MAPS

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BENNETT, NORTH CAROLINA
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 20

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